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THE COMMERCIAL HIGH SCHOOL AND THE BUSINESS COMMUNITY[1]

F. V. THOMPSON
High School of Commerce, Boston

Granted that commercial schools should have a practical connection with business affairs, there arises the question as to how such a relation may be brought about. The scheme of administration usual in public schools does not lend itself easily to definite relations with outside forces, and indefinite and casual connections are not productive of appreciable results. There is need of definite machinery if substantial good is to be obtained.

The methods pursued in Europe are natural and simple as well as highly effective. But the European commercial school had a different origin and a longer history than has ours. Consistent progress from the beginning makes the present standing of these schools more than satisfactory, whereas in this country we have scarcely admitted the principle upon which educational practice may proceed. Public commercial schools in this country have had no similar origin nor so long a history. Today we

[1] This article is the third in a series of articles by headmasters and principals, treating of the administrative problems of various types of secondary schools. The first article of the series, "The Aims, Duties, and Opportunities of the Headmaster of an Endowed Secondary School," by Dr. Endicott Peabody, Headmaster of the Groton School, appeared in the October number of the *School Review*, Vol. XVII, pp. 521–28. The second article, "The Social Organization of the High School," by Franklin Winslow Johnson, Dean of the University High School, the University of Chicago, appeared in the December number of the *School Review*, Vol. XVII, pp. 665–80.—ED. *School Review*.

find that the situation of self-sufficiency is inadequate and are consequently obliged to add to an already established system a new element, and a new element which does not promise easy absorption into our public-school organization.

The commercial schools of Germany are the creation largely of business men. The Chamber of Commerce of the German city is the "godfather" of the commercial school. It is the business man who is looked to for sponsorship and advice in the administration of commercial schools. In Milan the director of the commercial school (*Scuola Boconi*) is at the same time the secretary of the Chamber of Commerce. There is a lesson here for us. The schoolmaster who has to do with the preparation of young people and the business man who receives the product of the school have a common interest, and a position of mutual aloofness is consequently abnormal.

It is undeniable that attempted vocational schools in our own country have had but little connection with vocations. This has been true in a striking degree of the two types of applied education which are the more recent developments of the public secondary school systems of this country, namely, manual-training schools and commercial departments in high schools. The manual-training high school has until recently found virtue in the fact that no trade or art is specifically aimed at. Similarly, commercial courses in high schools have had but small connection with actual business practice.

Too great dependence upon textbooks has been a drawback in the conduct of vocational courses. In fact, the excessive use of textbooks has been a potent factor in the failure of the vocational school in general to comprehend and properly equip for vocations. Over-reliance upon textbooks has naturally caused the teachers to feel little responsibility for personal investigation. Commercial textbooks purport to be founded upon close observation of actual conditions, and the teacher has accepted these books unquestioningly.

There will be marked differences as to methods of attainment as well as to the extent of such an interrelation between vocation and school. There are undoubtedly bounds beyond which it will

be futile to seek to bring actual business conditions into the school. There are essential differences between the nature of business and that of the school. The school is a more altruistic force than business, and must always continue to be so.

For very survival the business institution is forced to apply the elemental law of self-preservation; the individual in the system who lacks adaptation is turned out. Whereas the school must not forget its mission to make the best possible out of individuals within its care. The human waste product, thoughtlessly thrown out, becomes a menace to society, which supports the school. Briefly, business is individualistic in aim, whereas the school must be in some degree paternal.

What then should be the limit which shall define how far the school must go in its efforts to serve the particular class and yet conserve the interests of society? The writer would answer the query by saying that the commercial school should go as far toward bringing into the school actual business conditions as is consistent with the higher purpose of the school—a free foundation of a free people, where each individual may make the best possible out of the gifts with which Nature has endowed him.

The exact application of the above principle will rest with those governing the policies of commercial schools and other vocational schools. Upon their wisdom will depend the proper balance to be maintained. Especially while these schools are in the experimental stage will there be extremes either of aloofness from business affairs or servile imitation thereof. It is to be hoped that some rough norm may finally be established for the guidance and standardization of educational practice.

But the business school at present has more to learn than to fear from contact with practical business affairs. The evil has been, not that the school was jealous of its higher prerogatives, but rather that the school was oblivious of the fact that there has been anything to learn from outside sources. The business man and the schoolmaster have been in the past too far apart. Both have considered that there was little common ground. The business man has looked upon the schoolmaster as one who is doing a kind of work in society which is admittedly useful, but

whose efforts affect business development but little. In turn, the schoolmaster has regarded the business man as one whose opinions were of little consequence so far as pedagogical practice is concerned, and as one who does not comprehend or sympathize with the difficulties of school administration.

There are, broadly speaking, three forces within the schools themselves which must co-operate harmoniously if we are to incorporate this new force into our system. These are, first, the school committee or board of education, under whose authority city charters place the control and major policies of the schools; second, the superintendent and supervisors, who constitute largely the executive officers of school committees; third, the principals and teachers, who have to do with the conduct of specific schools. The principal and teachers of a particular school can do little if the powers higher up are antagonistic or apathetic.

Then there is the business community itself to be reckoned with. It is a wrong assumption to claim that this force has always been, or is today, right minded upon effective schemes of co-operation between school and vocation. Business men have idiosyncrasies as well as schoolmasters, although none can deny that the competition for existence more quickly eliminates these from positions of activity than is true in the pedagogical world. Then again, there are successful business men who are mere doctrinaires, or perhaps cranks, upon questions relating to educational practice.

From generalizations we may come to the concrete by describing the specific plan which has been in practice at the High School of Commerce of Boston. The plan as outlined cannot be offered as possible of close imitation in other cities. The conditions of each city must govern the local plan. It is the opinion of the writer that some practical plan may be found in each city if conditions with respect to the co-operating forces are not found to be abnormal.

Beginning with the three co-operating forces within the school system of Boston, some detail in regard to each may prove of value. The school committee of Boston may first be considered in its relations to the experiment now under way. By legislative

enactment the old school committee of twenty-four was replaced by a committee of five, similar in all respects concerning duties, rights, and powers, with the single difference of number. This change was effected in 1906. The High School of Commerce was one of the first creations of the new committee. The superior effectiveness which the new committee at once exhibited was a fortunate condition for the school. The concentration of power into the hands of a few more carefully selected, better equipped, and more responsible members made the possibility of co-operative relations of the school and the business world much easier than would have been true under the old régime. Even with the best of intentions the old committee, by its very constitution, never rose above the level of a popular assembly where cliques and party interests rendered the result of all deliberations not the best method to pursue, but the best compromise to be obtained. The new committee was better able to guide the destinies of a business school, and the directness and vigor of their procedure may be seen in two chief methods adopted for launching the project of a special school of commerce.

First, a systematic study was made of existing forms of commercial education, similar to what was contemplated in Boston. The committee in a body visited the New York High School of Commerce, examined its work, and considered its merits. The headmaster of the new institution in Boston was appointed sufficiently in advance of the opening of the school to enable him to travel, investigate, and study his problem. The headmaster not only visited the schools of this country, but spent some months abroad studying the older and justly celebrated commercial schools of Europe. Second, the school committee invited to serve and caused to be organized a representative committee of business men, which should advise the new school in its initial policies and guide the school in its development.

Simultaneously with the new school committee came the election of a new superintendent, a change in the constitution of the Board of Superintendents, and a general reorganization of the Boston school system. Before this period there was a wide divergence of educational practice among both the elementary

and secondary schools. The new school officials immediately set about the problem of organization. Uniformity and standardization seemed to be the chief needs of the system as a whole. With the definite policy of the administrative officers turned toward an evil which hitherto had appeared almost a virtue, a rapid readjustment was brought about in all the separate schools. This reform, while on the whole favorable to the new school, had within it certain dangers. Standardization presupposes a type, and when the process is applied to school administration the type selected must necessarily be something which past experience has proved to be good. A school system as a whole may be immensely benefited by the standardizing process, but a new and experimental school may be very much handicapped and restricted by it. Corroboratory testimony from an eminent authority on commercial education may be aptly brought in at this point. President James wrote the warning some years before any commercial high schools had been established in this country:

> It is undoubtedly true that in the long run we shall have to rely upon public institutions to accomplish the most general and widespread results, but there is also just as little doubt that more rapid progress might be made if some private individual or corporation would take up the matter and give a commercial high school which could serve as a model for our city boards. For the history of education in this country shows conclusively that the spirit of routine and formalism which nearly invariably prevails in any public-school system is unfavorable to rapid and thoroughgoing improvement; inasmuch as it is unfavorable to experimentation, and experimentation is necessary to progress.

It is doubtful whether a special school in any centralized school system can be allowed to enjoy a freedom from restriction which a private institution has. But against this must be weighed compensating privileges. The dignity and majesty of the state, in a sense, surround the public institution, and many services will be offered or can be commanded on that account. On the whole, it may be said that the development of the vocational side of the High School of Commerce has not been made unduly hard by restrictions from supervising officers, and the

evils hinted at by Dr. James have been avoided as far as was consistent with the larger needs of the school system.

The attitude of the school itself, the principal, and teachers may next be treated as the third co-operating force in the problem under consideration. It is natural to find here more concern, enthusiasm, and energy than in either of the two more exalted forces. What may appear as an incident in the view of the chief executive becomes the factor of large magnitude for those upon whose shoulders must fall the special burden. Of the many elements that might be pointed to as indicative of the spirit of the school toward the vocation, the one of efficient internal organization only will be dealt with in detail. The importance of definite machinery and the ineffectiveness of haphazard schemes have already been mentioned. As an illustration of these principles applied to the question under discussion may be stated here the plan pursued in the High School of Commerce. It is believed that the plan of organization of the school offers favorable conditions for considerable achievement. The school is organized with six departments, namely, English, modern languages, economics, mathematics, business technique, and science. The heads of these departments are men of superior ability, training, and attainments, and are paid a correspondingly higher salary. These men are the experts of the school; they are responsible for the educational standards maintained in their subjects, and the vocational relation which the school bears to the business community is in a large degree in their hands. These men bring to the less experienced teachers of their departments the information and guidance necessary to perform their work. In this way it is possible to use effectively teachers who have not the advantage of special training in commercial work. This method of procedure may be best illustrated by stating in brief how several of these department heads bring about the vocational relation of the school.

The head of the department of economics has charge of all subjects dealing with business theory—such as commercial geography, local industries, *economic* history, *economic* theory, etc. He makes investigations into the field about him, con-

sults with business authorities, and makes himself acquainted at first hand with the business conditions of the community. He arranges for a series of weekly talks given by business men before the whole school; he organizes special supplementary courses given by business experts, not teachers by profession; he conducts excursions to business houses where students may see in operation the machinery of business; he collects material for the commercial museum and acquaints himself with the best literature appearing in his field, and in this connection sees that the commercial library is supplied with approved books upon economic questions.

The head of the department of mathematics studies the business field for practical methods for the schoolroom. The present incumbent spent a summer vacation in the actuarial department of a large insurance company in order to experience the actual touch with practical affairs, and learn through personal experience the standards governing the applications of business principles in his department. He studies the methods and processes of mathematics in use in representative business houses; it is his duty to supplant traditional practices with the more approved forms which are constantly being developed in business houses; he collects typical problems peculiar to the businesses which the students are likely to enter.

The head of the department of business technique has the special training necessary to qualify him for his position. He is a certified public accountant, and has had ample experience in the accounting part of business to make him well able to train the young men in this field. His duties are similar to those of the teachers described above, with the difference that his contributions pertain to his special field. He studies contemporaneous practice and keeps his department abreast of newer ideas.

The accompanying circular letter recently sent to business houses explains the matter of summer employment. This plan, which has proven so valuable in application, is the direct result of the suggestion of the Business Men's Committee. It illus-

trates another phase of valuable co-operation between the business community and the school. Following is the letter:

Dear Sir:

As perhaps you know, the High School of Commerce has been established to give young men an education with the definite intent of making them efficient in commercial enterprises. Business men who are closely in touch with the work of the school feel that the pupils will benefit by any experience which during their school course they can secure in actual business affairs. We therefore wish to obtain for a number of our pupils the opportunity to work in a business house during the summer vacation. If you care to grant this opportunity in your own firm, we ask permission to send to your employment agent one or two properly selected young men from our upper classes.

The young men who will thus offer their services desire chiefly to secure experience: whatever work you assign to them they will be willing to undertake, and whatever compensation you think they earn they will accept. In general, however, our pupils are preparing to engage in one of the four following lines: accounting, buying, selling, secretarial work. It may be that the vacations which you give to your employees will render acceptable the services of a beginner in one or more of these departments. As our pupils wish to secure work in the line they hope eventually to enter, we should be glad to know in which of these departments applications would be welcome.

We venture to hope that beyond the satisfaction which the services of these young men may give, the merchants of Boston will feel pleasure in forwarding in this way the work of the city's public High School of Commerce. The young men will carry to you our estimate of their abilities; in return, we should be glad to receive the estimate formed of them by their superiors in the houses they enter. By this exchange of estimates both the pupils and the school can benefit. Co-operation of this sort between German commercial schools and German business men has given to German commerce the ascendancy it now holds. In our own country the Commercial School of the University of Illinois has secured like co-operation with excellent results. By the urgent advice of our Advisory Board of twenty-five business men, we now ask your help in obtaining for our school a practical laboratory in the business houses of Boston.

The plan which is outlined above was tried last summer in the case of second- and third-year pupils, all of whom earned the commendation of the business houses in which they were employed. They returned to school with statements in regard to their ability from their employers, and proved to be better fitted by their summer experience to profit by the instruction which this school gives.

We should be very much pleased to receive your offer of co-operation in this matter of summer employment.

Yours very truly,

Headmaster of the High School of Commerce

During the past summer traveling scholarships were established through the public spirit of certain Boston business men. Two young men from the senior class of the school were sent on a trip of visitation and observation to the east coast of South America. They visited such larger cities as Buenos Ayres, Montevideo, Rio de Janeiro, Santos, etc. The young men were chosen upon examination in such subjects as modern languages, economics, and knowledge of commercial conditions in South America. The successful candidates upon returning made to the Business Men's Committee an official report covering the results of their investigations.

The good results effected by these scholarships are many. Chief of all, perhaps, is the spreading of the idea among our young men of the importance of foreign markets, the necessity of preparing carefully and specifically for this new and promising field of enterprises, and the acquaintance, at first hand, with the commercial conditions in foreign countries where we may have trade expectations—a knowledge which at present is sadly lacking. Interest and enthusiasm were developed by the reports of the student representatives.

As a final topic may be described the Advisory Committee of Business Men, before referred to. This committee has been a strong factor in whatever co-operation has been effected between the school and the business community. The body is composed of twenty-five members chosen from the chief business organizations of Boston (Chamber of Commerce, Merchants' Association, etc.). This committee has served since the beginning of the school in 1906. It was organized at the request of the chairman of the school committee, Mr. James J. Storrow, and serves during the pleasure of the legally established officers. It has no inherent authority and acts merely in an advisory capacity to the High School of Commerce. The plan of organization is simple and effective. The Committee has selected from its num-

ber an executive body of five whose duty it is to examine in detail the various questions affecting the school, and this small body meets once a month for this purpose. The general committee meets semi-annually, listens to the report of the executive committee, and takes such action as is deemed appropriate. The conclusions of the advisory committee are transmitted in the form of resolutions to the school committee.

The advisory committee has rendered excellent service to the school. The school committee has been disposed to regard with favor the recommendations of these public-spirited business men. A thoroughly helpful spirit of sympathy and co-operation has been thus effected. The advisory committee has devoted much time and attention to the problems offered for their consideration. The meetings have always been well attended, and the interest exhibited has been an undeniable proof that opportunities for co-operation and working relations are as possible in this country as they are abroad.

The breadth of view exhibited by the advisory committee has been a pleasant surprise to those who regarded the innovation as a doubtful experiment. The committee has considered the school as part of the general system and has not urged that exemptions and privileges should be granted to the institution.

One valuable influence of the committee has been to put the school in the proper attitude toward its problem, an attitude of study and observation. What is done now is frankly considered provisional, the best under present information, but much better is to be discovered with further experiment. Thus a crystallization of the school to an unchangeable type is avoided, and a system of organization as well as an attitude of mind which permits steady progress is effected. Frank acknowledgment of present limitations is as important toward educational problems as toward other problems.

The present achievements of the school are undoubtedly crude and rudimentary, but with the forces of co-operation at work in the development of the institution, worthy attainments are certain to follow, and distinct contributions to the general question of commercial education may be expected.

FROM A SUMMER NOTEBOOK, 1909

J. J. FINDLAY
Manchester University, England

It occurs to me that a few notes which I have made on a recent visit to America may be of interest to the readers of the *School Review.* At first blush July and August may not seem to be the best months in which to extend one's acquaintance with matters relating to schooling on your side of the water, for the schools are closed. But on my previous visit, many years ago, I had realized there is much to be learned about education apart from visiting the buildings or sitting in classrooms during recitations; the important thing is to get at the school people, the men and women who are doing the work. And also is it not important, if you want to see an educational movement in its right perspective, to mix as much as possible with all and sundry?—to see children in their homes, to talk with neighbors in the smokeroom of a Pullman, or on the verandah of a hotel at a health resort?—in fact, to forget that you are a teacher on the hunt for new pedagogy, and just to let the situation and impression as they meet you produce their effect, and afterward get worked up into your mental store. The vacation is a good time for this sort of experience. I found people up in the White Mountains, or down by the beach at Nantucket (especially at Nantucket) in holiday mood, *au naturel.* Even at Chautauqua, dedicated all summer time to the sacred cause of literature and art, people were not overstrained with anxiety to discuss pedagogy. Now it appears to me a real help to a student of education to get at home in the country. He gets a more natural perspective from which to view the scene. But even for the more direct purpose of making acquaintance with teachers, this summer time is quite good. For since my last visit (in 1894) a wonderful change has taken place. The summer school has now established itself as one of your great educational resources.

Not only is it proving itself a more effective instrument than the institute for the general purpose of helping teachers to improve their efficiency, but it is serving a special purpose, which I am inclined to think is only half realized. It serves as a sort of clearing-house, a place of exchange for new ideas. During the autumn and winter, a teacher is pretty busy on his regular job —routine, conservatism, order are his watchwords: the machine must keep going, even if the higher functions of reforming thought cease to give an effective result. But when the long weeks of summer begin, after a week or two of apathy, the mind finds a new elasticity, and if at this juncture a number of teachers get together in a summer school, they are ready for new light; daring ideas no longer seem extravagant; inspiration comes; comrades from distant quarters are around to share one's hopes and fears.

Thus I can see that this universal period of vacation is proving a great intellectual boon to schoolmen (although I am by no means so sure that it is so good for the children). I notice, for example, the rapid way in which ideas relating to *industrial education* are extending. I spent a week at Hyannis, Mass., with some of the leaders in this movement. Apart from its summer school, Hyannis would scarcely count for so much, since the attendance in the winter sessions is necessarily small, but with the summer school of 300, many of whom come from distant parts, Principal Baldwin and his colleagues are able to take a prominent share in influencing the trend of thought.

And, for my part, after this experience, followed up by reading, and by inquiry at other summer schools, I think I have learned as much about what this industrial education amounts to as if I had come in the winter and watched the children at work.

The summer school fulfils another function, whose importance I scarcely realized until I came right up to it. One morning, I met a lady from Texas, then a principal from Alabama, next a teacher from Vermont and a professor from Oregon; at the delightful conference I had at Teachers College, New York, I suppose nearly every state in the Union was represented. Now this is surely a matter of quite the first importance. With-

out designing it, you secure an interchange of experience between different parts of this great country which is essential to progress. You have no unifying central authority such as the governments of Europe impose on all parts of a nation: hence the greater need for abundant exchange of ideas which shall prevent an excess of narrow provincialism in each state.

This reference to provincialism puts me in mind of another question which seemed to me, as I traveled about, to be of quite the first importance—the reliance you are placing upon the schools to develop in your immigrant population a genuine spirit of patriotism. All visitors from Europe who look into your schools echo the same opinion, that you are achieving a decisive result by infusing in stranger minds a new sentiment. The pride that you rightly feel in the marvelous expansion of the states is communicated at the earliest ages to these budding citizens and there are few signs that indicate among them any sighing for the fleshpots of Egypt. I am not sure whether your country is itself conscious of the extent to which this purpose has worked itself into the public mind as a definite educational end. As an illustration the use of the term "citizenship" may be cited. Fifteen years ago all the professional textbooks discoursed on the training of *character,* as the final aim in education; but now I find that you are constantly substituting this word "citizenship" and are speaking of citizenship as if it comprised the whole duty of man. In a sort of way you may regard this as exact, if you choose to include within the term "citizen" a man's duties to religion, to his family, to his business; but this is really a perversion of terms. I am convinced that this language indicates a new attitude—an infection of the teacher and schools with a zeal, a cult for America and all things American, which found its origin in your special situation as regards the subject population and is now carried on by the force of its own momentum, very much as a similar cult laid hold of the schools of Germany in the seventies.

Now I am going to criticize, not the purpose of this cult, but the *method* of its pursuit. The child of any age up to 15 is not greatly interested in mighty, national affairs: he can be stirred

to violent superficial sentiment of an imitative sort, on any topic you please, by flag-waving and the singing of songs, but if the training is to be effective it needs intellectual support as well as color and sound. The intellectual interest in 49 United States with a wonderful president in a still more mysterious White House is too vague and shadowy. You tell each of the little boys that he may become president of the United States, but it can't mean much: there are not enough presidents to go round! Look into the minds and hearts of these little folk (and include their parents, too; father and mother are childish as well as their offspring). What a pathetic situation it is! They come to you, each with his memory full of local color, of race-passions, of a hamlet somewhere where he had toiled and loved and suffered, or of a city where, in spite of its filth and poverty, he had had a home. And all this, bad and good together, is swept away in the long and weary track over the ocean, which I am traversing as I write these lines. There comes to my mind a tragic passage from the gospel about "an unclean spirit that is gone out of a man." So it is; immigration banishes the old, though dark and evil, spirit that had made life so mean in those older lands which cast loose upon your shores their superfluous growth. And so when these people come to work for you, to live with you as brothers and sisters, you reform them; your climate, your opportunities and resources, above all, your schools, remodel their minds, and there they stand "empty, swept, and garnished." You effectually stamp out the old life; the old country is just that—the old country—and nothing more, a pathetic memory. Race-instincts are violently broken up, the cords that bind a man to the soil, the institution, the dialect of his tribe are rudely severed, and he stands there, and reflects, "Empty, swept, and garnished." And the melancholy gospel continues, "Then goeth he and taketh to himself seven other devils worse than the first, and they enter in and dwell there: and the last state of that man is worse than the first." Is there any truth in the analogy? I mean, does this ugly parable correspond to the facts of the psychology of immigration? If so, I doubt whether the emotional excitement of this vague cult of Americanism is adequate to meet the situation.

What these unhappy folk have lost is local color, local affections, matters of sight and sound which they held with personal affection. And although I cannot advance it as more than a speculation, I believe that you must replace that vacant chamber with something of the same sort. In other words, I would like to see a renewal of local interest—the teaching of local geography, local legends, local incidents. The facts of nature and of man within a ten-mile circuit of the home are the first things that should engage the interest of the young, whether they are of alien race or are American-born. In other words, local patriotism must come before national; the mayor of the city before the governor of the state; the local river and steamboat before the great Mississippi with its traffic.

But I am trespassing beyond the bounds I designed for this paper. Let me only add that a friend directed me to one locality where a most successful effort has been made to solve this problem. Springfield, Mass., should be proud to have so admirable a book as the one written by Mr. Barrows for his city. I should like to see such a book used in the schools of every city and county in your country. We are beginning a similar movement in England, but none of our local histories seems to me so excellent as this from Springfield.[1] Likely enough you have others published in other states but I have not come across them.

Another problem in which I found much that was instructive is concerned with the questions that I and others were discussing in earlier numbers of this *Review,* viz., corporate life in the high school. I met quite a number of principals of high schools at different times—from every part of the country; there was scarcely one, I think, who did not betray real anxiety as to the socio-moral conditions under which his work was conducted. And the same impression came to me from conversation with parents, superintendents, and others interested more on the fringe of high-school affairs.

[1] Chas. H. Barrows, *The History of Springfield, for the Young.* Springfield, Mass.: The Connecticut Valley Historical Society, 1909.

Here I am going to venture on a generalization—based partly on this visit, partly on what I had read and heard beforehand. I think your high school, your system of schooling for boys and girls between fourteen and eighteen, is the weakest feature of the entire national scheme of education. It was, therefore, a great delight to me to come across men of high moral purpose engaged in this field—one, I remember, from a southern city who is fighting gallantly to maintain a high moral standard of discipline in an ill-disciplined community: another in a small town of New England, displaying an intuition amounting to genius in making his academy a center of intellectual and moral union for all the families in his circle. If the spirit that animates these men can be widely infused; if your high-school teachers, men and women, can be led to realize the supreme importance of corporate life, of personal influence, then the problem will solve itself, not in our English way, although our English experience is worth while for comparison, but in a spirit which will accord with the triple demand: first, for a recognition of the special psychological needs of adolescence; second, for sympathy with the democratic freedom which, for good or evil, pervades American society; and finally (and this will follow without further effort), for a high, conscientious standard of attainment in every branch of study which the high school professes.

I am attempting nothing more than to note, as it were on the margin, some of the points that have remained in my recollection of these weeks of vacation. I will try, in conclusion, to put into words a still vaguer impression. I know no country, not even Scotland or Germany, where general opinion proclaims more loudly the value of schooling: further I constantly found parents anxious in the extreme to give their children a more advanced schooling than they have had themselves—and these were not exceptions, they are evidently the rule; East and West, and now also I gather in the South, the same eagerness to secure all that is going in education is witnessed. On the other hand, I am in doubt as to whether this desire to grasp education has not by a long way outrun an understanding of values. I mean

that the people, although they genuinely believe in schools and college training and are ready to pay for it, do not know what the genuine article is. Thus one sees great efforts to erect fine buildings, but I doubt if the same energy is applied to secure good teachers. I can see very little evidence that any body of public men has set itself to treat the question of securing the right article for this job, as a man of parts in a great factory sets out now-a-days to secure a capable set of workmen for his machinery. Suppose one regards the matter only from its lowest aspect, that of salary. If you compare the average pay of a teacher with that of a factory hand, or a lawyer, and then place your comparative table side by side with that of similar employment in European countries, I think the figures would show that the teacher (I do not differentiate as to sex) is being paid considerably less to the west of the Atlantic than to the east. It is not that you do not appreciate schooling; you believe that the children must be taught and that it is for their good to flock to the high schools and even after that to college; but you have not taken the next step, and made a business-like inquiry as to what this process involves in order that it shall answer its design. As a result, except in certain definite problems (such as that of the immigrant population to which I alluded above) I am not inclined to overestimate the effect of all this educational zeal, at the present day, upon the American people. Moltke, you will remember, told his nation after the Franco-German War, "Der Schulmeister hat unsere Schlachten gewonnen," and he was right: that is the kind of cause-and-effect relationship that I have in mind and that I fail to see at work in the United States. I may be obtuse, and perhaps the materials for a judgment fail me. But as I look at things, America appears to me, as regards education, to have extraordinary "faith" and to care little, in comparison, about the "works."

The nation is making extraordinary strides—most conspicuously, of course, in wealth, physical comfort, and the like; but quite as remarkable, one thinks, in the deeper things of life—new social adjustments, literary and artistic aspirations, religious introspections. Your life seems full of them. But they are

not the outcome of schooling. Of course you want the schools and colleges, but if they really thought about it, the American people would admit that these institutions are only a kind of waiting-room, to keep young people usefully occupied until the time comes to absorb the new generation in the hustle of real life.

I fear what I am now writing will be regarded in some quarters as dreadful heresy, but one is told that Americans[2] are not as sensitive to criticism as they used to be; and if anyone on first reading this paper feels offended at this opinion, I will ask for a second reading and hope that the presentation will not appear so offensive. For what it comes to is this: your nation is being made and remade most marvelously every decade; and it affords a most interesting sociological study to our age, because of the open light in which these rapid changes follow each other. These advances are the result partly of political freedom, partly of limitless natural resources, partly of the trials and strengthenings of character developed out of the racial problems and conflicts that you endure. These and other such influences have made the people what they are; but with all respect and admiration for the schools and the teachers, I cannot believe (apart from the exceptions alluded to) that schools and colleges have as yet played any vital part in the growth of the nation. But the enthusiasm is there, the faith is there, and to me the United States is, in the best sense of the word, the land of promise as regards this task of education. I have jotted down these notes while still my memory retains a vivid impression of an experience that has done much to help forward my own mind, much to reinforce one's own faith and hope: for over and above every other impression, there remains a delightful recollection of the buoyant vigor, the resilient cheerfulness of spirit displayed wherever one goes, by all who work in our field. What a prospect is afforded for the future of this mighty continent, which has so little in the past to regret, so much in the present to enjoy, and, in the future, worlds unknown to conquer!

[2] *Vide*, J. G. Brooks, *As Others See Us.* Macmillan, 1908.

HIGH-SCHOOL MATHEMATICS

THIRMUTHIS BROOKMAN
High School, Berkeley, Cal.

For some years Discipulus had taught mathematics with increasing dissatisfaction. For some years he had initiated high-school freshmen into the mysteries of elementary algebra, yet found that less than one-fifth continued the subject in their third year and still fewer made use of it in college. The numbers of entering freshmen however never decreased. All were put through their mathematical paces for the sake of the magic fifth who studied the advanced work. His best efforts failed to find an answer to the question: *Does the one year's training in algebra justify itself for those who do not continue the subject?*

Investigation showed that the greater number of those who did not continue mathematics felt that they had not gained the *sense of power* from this subject which was afforded them from other studies. Because he was not sure that each year of training "delivered the goods" to his students, Discipulus devoted his leave of absence to the investigation of high-school mathematics, seeking inspiration and clearer vision.

In training-schools for high-school teachers he met three lines of work: *why* to teach mathematics, *how* to teach it, and *what* to teach. The larger view of its place in the curriculum and the adjustment of the subject to the varying needs of different students, he found little emphasized.

Educational experts soon began to be classified by him as "teachers of mathematics" and "others." The former believed, almost to a man, that every pupil should study one year of algebra and one of geometry. The "others" were not sure that this course was justified; many, whose experience commanded consideration, condemned the current practice. "The pupil studies elementary algebra in order to acquire advanced algebra, which admits him to college algebra and thus equips

him to become a teacher of elementary algebra!" The only refutation of such a charge must come from the fact that mathematics lays the foundation for practical work, and Discipulus accordingly entered the world of applied mathematics.

His attention was immediately arrested. Many engineers of standing attached to their high-school mathematics little value except as a means of mental training. (Discipulus did not tell them that the doctrine of formal discipline was fighting hard for life.) They kept in their notebooks their few daily formulae and asked from the schools only the ability to compute accurately, to solve simple equations, and to use logarithms. Other engineers who hired large numbers of high-school students found them unable to apply mathematical common-sense to the solution of the simplest practical problem, however expert in artificial textbook problems.

Industrial schools in New York afforded a wide field of observation. Manual-training high schools employed teachers direct from the shops; night schools were thronged by those anxious to earn higher salaries. The girls' trade schools made no use of algebra except for mental training *per se*. The only mathematics required in those trades not distinctly quantitative, was simple business arithmetic and the most elementary formulae involving measurement. Attention next centered upon the training of the mechanic. Training courses for electricians, machine pattern-makers, plumbers, forgemen, etc., included algebra and geometry, yet omitted many chapters of the high-school text *in toto*. The mechanic needed the equation as a tool in handling the formulae of an engineer's handbook, but was not concerned with mathematical logic as a branch of reasoning. Also his types of factoring were fewer, his methods of handling fractions more direct and numerical.

The mathematics of the academic schools forms a logical unit which trains in abstract thinking and prepares for higher courses which few will pursue. The mathematics of the elementary technical school forms a series of simple principles which focus attention upon the equation and its applications in daily life. Two questions arise from the comparison. First,

if our high-school mathematics were to emphasize ability to solve problems rather than to develop theory, *what material should be omitted and what inserted?* The answer was most one-sided. Many were ready with new matter to introduce; none presented a reasonable scheme of what might be omitted. Second, how could the practical problem be introduced pedagogically, and would the change produce more power to think independently. The most direct answer came from the School of Science and Technology, Pratt Institute, Brooklyn, N. Y., and from Lewis Institute, Chicago.

In Pratt Institute, the traditional methods of teaching have been abandoned. The mathematics of the two-year courses, which includes the essentials of algebra, geometry, trigonometry, analytics, and calculus, is in a series of practical texts so taught as to be as constructive, creative, and individual as shop work and the product is as proudly regarded by the student. To use the work in algebra as an illustration, students begin with the formulation in applied notation of the principles and laws in common use in shop, drawing-room, and laboratory, by means of which the significance and use of algebra shall become immediately apparent. Every formula is applied in numerical computation to the end that even the weaker students shall become expert and accurate in the common arithmetical operations. Gradually, by inductive and suggestive methods, the conventional is interwoven with the concrete and practical. The work throughout the course is consciously based on the fundamental and accepted principles of education in such manner that each student writes each subject complete, with steady purpose and independence and with an increasing sense of power and useful accomplishment.

Lewis Institute in Chicago afforded the same line of comparison among a younger set of students. In one room the orthodox class in algebra employed laboratory methods, embodied the latest improvements of mathematics associations, and covered the college requirements. The student thought clearly but worked with the usual passive obedience. In the adjoining room a class of apprentices devoted alternate weeks to the shop

and to its mathematics. They studied the working of the steam engine in the laboratory, and during the next week its underlying mathematical principles. The boys worked alertly, upon their own initiative, because they understood the immediate purpose of their work.

The contrast suggested a carpenter's tool chest. In one room, every form of brace and bit, every size of chisel and screw-driver, finely tempered and perfect, hung in its proper place, ready for use in the far future. In the other, each had the simplest kit of mathematical tools, a few saws, planes, and chisels, but the shop boy kept them bright with much use upon all occasions.

One difficulty in conducting such work has been the lack of a suitable text. (It was in a far western school that Discipulus found the book which contained "psychologized elementary mechanics in terms of the child" and thus bridged the usual gap.) Another difficulty arises from the fact that the master of applied mathematics commands a higher salary than the school can afford; yet the teacher is too busy with routine work to gain first-hand knowledge in the shop.

The lesson of the technical school was manifest. It studied the law of supply and demand. Because the world needs craftsmen who can "do things," all its courses must bend toward that end. Each year's mathematical training must embody a precipitate of knowledge indispensable to the mechanic. One of the great problems of the public school it never meets: "What mathematical training should be given to those who will enter neither college nor a mechanical trade?"

From the polytechnic institute, with its freedom to unite theory and practice, Discipulus turned to the great city schools. Here it was the almost unfailing custom to prescribe one year of algebra and one of geometry to all sorts and conditions of pupils. Those who continued algebra, as an elective, for a second year, were but a small minority, and these alone could enter college. Those who studied the subject for but a single year were merely half-way toward the goal of college entrance. No residuum of knowledge for use in the practical world was

insisted upon during the first year's work. The catechism became monotonous in its repetition.

Do you think it desirable that more students should study a second year of algebra?

No.

Is it advisable that all should study one year of algebra?

Such has been our custom.

Do you in the first year give practical applications of the algebraic manipulations?

We have too little time.

Of what value, then, is this single year of algebra, since you do not give to abstract symbols a concrete meaning?

Perhaps later the student may desire to enter college.

Is the present year of work of such value as to prescribe it to the majority, for the sake of the minority who enter college?

It is not.

Why then do you emphasize the abstract at the expense of the concrete and also at the expense of the child?

Because we are influenced by the College Entrance Examinations.

Again and again, in the last analysis, the examining board was made to shoulder the blame for existing conditions. Discipulus felt moved to investigate the influence of this board upon the choice of subject-matter taught in the schools. It is possible to pass the recent college entrance examinations in elementary algebra and include but a *single question* in which mathematical symbols are given a concrete meaning. The purpose of the system is to determine "the candidate's intelligence, power, and preparedness for college work." It is obvious therefore that the examination may well serve its avowed purpose without testing the ability of the great majority to use their high-school training in daily life. The board has contributed much toward unifying the entrance standards of the colleges. It is, of necessity, a conservative body, yet it stands ready to readjust its requirements when the high school can present a scheme of applied mathematics which meets the demands of the majority better than does our present system.

If the high-school teacher finds that those of his students who want immediate power from their mathematics drift into technical classes, he must not make the College Entrance Board

his excuse. The difficulty must be squarely met. It lies in the complex nature of the remedy suggested. If the present teaching is too abstract, it can become concrete only by closer connection with practical life. One school may apply its mathematics to the law of levers, a second may emphasize horsepower and steam pressure. But suppose the examination draws its applications from projectiles? The range of data for such illustrations is world wide. The practice of sacrificing high-school freshmen upon the altar of mathematics is also world wide. The process of rescuing him by the judicious readjustment of prescribed and elective, of symbolic and applied algebra is the problem of the mathematics department. Since no one has a more intimate knowledge of the defects of the present system than has the high-school teacher, it is for him to develop the remedy.

From the technical school to the academic high school and thence to the teacher—whence come his inspiration and enlightenment? From experiments in correlating allied subjects, from daily contact with experts in modern higher mathematics, from research work in the history of its development.

The correlation of algebra, geometry, and trigonometry into a single unit may be seen in the Lincoln High School, Nebraska. During twelve years, by the most painstaking attention to detail, it has developed a science of high-school mathematics, natural, teachable, and vital. The experimental stage is passed; each week's work is a definite and clean-cut section of a well-proportioned system. Pupils are familiar with interrelated mathematical principles and their history. The talk of the classroom combines algebraic, geometric, and trigonometric concepts with the familiarity of long usage. Of importance psychologically is the fact that pupils are here required to invent problems illustrating given principles. These, when given to the class, arouse more interest than allied book problems.

At the close of the visit came the test question: "Do you expect *all* pupils to study mathematics?" The answer was significant. Work in mathematics begins in the second half of the first year, preceded by an inspirational course in general science.

Such students as have previously shown marked inability in mathematics are not urged to enter the course. The consequent freedom from dead weight makes possible sufficient joy in the work to keep the great majority studying the subject for three and a half years! Boys and girls here continue their education who would elsewhere leave school in discouragement.

A leave of absence converts a teacher into a student. Discipulus' inspiration in renewing the study of higher mathematics was due partly to working under professors with a strong grasp of a broad subject, partly to breathing again the atmosphere of the university, partly to greater intimacy with the work of today's mathematicians. This latter is discouraging because the various developments of modern mathematics are so highly specialized. Each has its own new set of symbols and brings the student, at the end of the year, but to the threshold of new knowledge. Courses, or series of articles surveying the mathematical contributions of the twentieth century "in words of one syllable" would be worth their weight in gold.

Throughout the year, work in the history of mathematics afforded unending pleasure. The riches of the mathematical library and exhibit at Teachers College, manuscripts gathered from all quarters of the world, first editions of mathematical classics, translations, fresh from the press, of the latest mathematical discovery, the mysticism of number, its puzzles and games—the number systems of the ages, the development of mechanical computation—the ancient calendars, astronomical instruments, weights, and measures—the book-lover longed for a lifetime to enjoy such abundance of riches. The student searched for new light on ancient modes of thought, the teacher anticipated the pleasure of illuminating his class work with historical sidelights.

Unwavering was the scholarly help and kindly guidance of the master of the library, unwavering his dictum. "As is the development of an idea in the history of the world, so should be its method of presentation to the class." Nowhere could the inconsistency of our present practice be more startlingly revealed. The ancients developed the special case of a mathe-

matical principle centuries before the general. Today the general principle begins the high-school chapter and precedes the special cases. Slowly and with labor the philosophers of old taught to the chosen few. They demanded a mature man's judgment to grasp the subtleties of logic. The moderns cover in two years a system of algebra whose development occupied two millenniums. No longer is it chosen by the elect, it is *prescribed* wholesale for the high-school freshmen!

Discipulus returned to think over the year's work. Despite much studying and visiting that have been left undone and some that has been done amiss, he has faith that the following conclusions are true:

I. *Concerning the place of mathematics in the curriculum.*—The renaissance in high-school mathematics concerns itself with what to teach and how to teach it. The question of the *advisability* of the present training for all sorts and conditions of students is still dormant.

II. *Concerning standards of judgment.*—The first and second years of mathematics need to be brought to judgment. Poor work in first-year Latin is revealed in the second year. Poor work in first-year English may be discovered by the parent. Poor work in mathematics frequently passes unremedied because the student rarely continues his subject. The value of his work is not "weighed in the balance."

III. *Concerning the focus of subject-matter.*—The first two years of secondary mathematics suffer from a lack of perspective. If each year's work were divided into *essentials* and *non-essentials*, the work of the classroom would be more efficient.

IV. *Concerning a content of mathematics as knowledge.*—If a certain precipitate of knowledge were considered essential throughout his course, the student of mathematics would refute the criticism that he does not "know things." Were this content selected from the viewpoint of the mechanic rather than of the logician, the student would be better able to apply principles in practice.

V. *Concerning the practical problem.*—The present status of the practical problem is ambiguous. Attention is chiefly confined to collecting and developing problems which frequently involve unduly difficult principles of physics. These may be replaced to advantage by simpler material from polytechnic shops and engineer's handbooks.

VI. *Concerning who should study applied mathematics.*—No one doubts that the introduction of the applied problem makes mathematics more practical. Does it do so for the girl of literary tastes as well as for the incipi-

ent engineer? There is need to develop the pedagogy and psychology of this question.

VII. *Concerning "team-work" in the faculty*—Much poor teaching passes unremedied and much good work unrecognized for lack of expert supervision. The practice of overworking heads of departments and providing them with poorly trained assistants is pernicious.

VIII. *Concerning the future.*—Progress can be made only by eliminating non-essentials from the present courses. We need experiments to discover what topics may be omitted to make room for the riches of applied mathematics.

UNIVERSITY EXTENSION IN TENNESSEE HIGH SCHOOLS

JOSIAH MAIN
Champaign, Ill.

Motives.—One who has followed agricultural progress and the part played therein by the U. S. Department of Agriculture and the state agricultural colleges knows that the present problem is to get the knowledge which has accumulated, into a practicable and accepted form for the most conservative as well as the most numerous portion of our population—the farming classes of the present and coming generations. But while this great problem of agricultural instruction is well recognized all over the land, another phase of the subject not less important is not so widely recognized, namely, that agricultural education promises perhaps more for the advancement of education than for the advancement of agriculture merely. And the fact that it is not so recognized leaves the propaganda in the hands of the agriculturists, rather than in the hands of schoolmen, for its pedagogical organization. As a school subject the pedagogy of agriculture has not been worked out.

Training in agriculture, having been classified as a division of the more general subject of industrial education, comes quite naturally to be regarded by schoolmen, trained along the accustomed scholastic lines, as being on a parity with manual training which is rapidly finding a place in our educational system. But this conception of the place or function of agriculture in the curriculum is wholly inadequate. For while manual training, aside from its general cultural value in the schools, aims only to train for a vocation, agriculture, aside from its cultural value for the student of whatever future calling, must, in its purely practical aspect, include a great deal more than a vocation. It is not only a business but a mode of life, and no preparation

for that mode of life could be complete that does not include not only farm husbandry, or agriculture in its strictest sense, but also much of the manual training peculiar to rural pursuits, hygiene and agricultural economics and even rural society, education, and general culture. Where the skilled mechanic or engineer of the city has his amusements, avocations, and daily interests, aside from his profession, provided by sports, theaters, libraries, lectures, art galleries, parks, clubs, and business intimacies, the farmer must provide not only his living but to a large extent all those things which make life worth living.

Citizenship of the highest type and not simply agricultural skill should be the practical goal of agricultural education. This ideal of education for the children of rural communities is far reaching and involves some deep-seated changes, not so much of the subjects to be taught as of the point of view from which to present them. The teacher will consider that pupils living in a rural environment should be taught how to make the most of that environment.

This conception of the place of agriculture in the elementary and high schools is given to explain the motive which prompted the writer in the inauguration of a new line of agricultural instruction in co-operation with the county high schools of the state of Tennessee while in charge of the department of agricultural education of the state university. The purpose, it will be noted, was not to lead students from the schools to the university more than would any other general educational cause, but to aid in the inauguration in the county high schools, of work now to be had only in the agricultural colleges of the land, and in response to a demand of the high schools for such work. It merely meant utilization in the child's education of the things most familiar to him, leaving it to each individual to decide whether he shall make a practical application of this training as a farmer, or accept it for the cultural value which all may get from it.

Organization.—The work offered consisted of a course running to the end of the school year, in the hands of the regular high-school faculty and given a place on the school programme

as definitely established as the other high-school subjects. The part of the writer was to go each month to each of the schools maintaining the course, to give a lesson and demonstration, to outline the work, and to suggest readings and reviews. Each lesson in turn presupposed the mastering of all former lessons, thus making the work cumulative and capable of increasing technicality.

Heretofore agricultural extension has been on a very different plan. To quote from John Hamilton, farmers' institute specialist of the U. S. Department of Agriculture, the farmers' institute has given adult instruction to experienced farmers and has suffered from there having been "too little time devoted to instruction in each locality" and "too little work done by the scholars." The work has been of value chiefly in giving a desire for more and better instruction, and this present plan was to satisfy that demand as voiced by those communities which desired the work in a better organized form through the medium of their schools. It had the advantage of regularity and progressive development, thus starting from the more elementary principles and gradually assuming a more scientific aspect. The importance of instructing youth rather than adults, of meeting the same audience on each successive visit, and of utilizing the government, equipment, and studious atmosphere of the established schools is also apparent.

The following conditions were asked of the schools desiring the work. Each school was asked to assume the responsibility for success of the work; to provide it a regular place on the programme; to assign the class to a member of the faculty to attend to demonstrations which require some time for their operation, and to see that the class did the assigned readings and reviews and kept notes of all instruction; to plan a continuation of the course from year to year so long as the university should offer co-operation; and, finally, to maintain the work independent of this connection as soon as the finances of the school and other conditions should justify it.

The expense to the school was nominal, a minimum of ten dollars being prerequisite, to be spent by the school for neces-

sary materials at suggestion of the visitor, which did not include any pay for services.

Operation.—Announcements of the plan and purposes of the work having been made by publication and circular letter, eleven of the most promising of the high schools applying for the course were selected throughout the state as being enough for one visitor to manage, and the remainder put on a waiting list to be considered later when it might be found expedient to drop any of the favored ones or when the university might be able to put more visitors into the work. Through no fault of their own two of the schools were later dropped, leaving the following nine schools, all but one being county high schools—the name being that of the city or village where located and the figures indicating the number of pupils taking the work at the several places: Newport (100); Madisonville (125); Sparta (150); Lawrenceburg (140); Ashland City (65); Paris (110); Arlington (50); Millington (80); Ripley (31). The first-named school is in the foothills of the Great Smokies near the North Carolina line and the last is near the Mississippi River. Of the total (850) pupils taking the work about 350 were held by the teachers of the several schools for the same mastery of this as of other school work.

The time required of the visitor was about a week for each of the two long trips and two days for the two short trips made from the university, going to the latter in the morning and returning the same day. Following the oral presentation of each lesson it was later put into a printed form with cuts and diagrams, published in a student publication of the agricultural college and mailed to each of the eleven schools for the guidance of teacher and pupils. In order to open the subject with concrete materials corn was used. The series began with morphology of the ear, bulletins from Pennsylvania, Illinois, Connecticut, Missouri, the U. S. Department of Agriculture (3), and the Office of Experiment Stations being left with the schools for study of that and the following lessons. This was followed by the making of a seed-corn tester, after Professor Holden's plan, and the testing of seed corn. Next in order was given a

lesson on fertility and fertilizers, the school running a flower-pot test of corn seedlings in washed sand to illustrate mineral elements necessary for plant growth and another with soja bean seedlings in washed and sterilized sand to illustrate fixation of nitrogen by legumes and the necessity of inoculation. Finally, the structure and composition of the corn kernel was studied by use of charts and reagents. The test for starch in the commercial form, in the green leaf, and in the kernel, brought out the significance of photosynthesis, and the identification of starch, oil, and protein in the kernel opened the subject of foods and rations.

Since few of these schools had any apparatus, such materials as were to be used were carried from the university in a suit case and a neat wooden box 10×7×19 inches with a handle at the top. The following includes most of the materials carried on the different trips:

Ears of corn illustrating merits, defects, and standard varieties,
Muslin for seed tester,
16 samples of fertilizers and salts of plant foods,
20 samples of commercial corn products in bottles,
Soja beans, soaked corn, and corn seedlings,
Pericardium of a beef,
Solution for inoculating soja beans,
Potassium permanganate, nitric acid, and iodine solution,
Alcohol and alcohol lamp,
Beakers, thistle tube, dinner plate, pane of glass.

Thus by means of corn the following important scientific subjects were introduced and briefly treated:

Acids, bases, and salts, and solution,
Osmose, physical and nutritive,
Plant foods and feeding,
Cell structure and function,
Structure and function of root, stem, and leaf,
Photosynthesis,
Rôle in plant life and cycle in nature of carbon, nitrogen, water, and minerals,
Animal nutrition.

And correlated with the foregoing the following agricultural subjects were treated:

Morphological and varietal merits of corn,
Selection of seed, viability of seed,
Breeding,
Soil fertility and fertilizer economy,
Fuel value of food,
Balancing rations.

Visits were usually advertised in local papers so that usually a number of outsiders were present, consisting of teachers, farmers, and school patrons. Extra meetings of teachers were sometimes arranged for especially at the end of the week.

Possibilities.—This plan contemplated some other features worthy of mention. As the teachers having local charge of the work in the different schools were mostly of more than ordinary ability but, like most high-school teachers, generally without any experience in such work, not the least important purpose of the work was the coaching of each teacher in his environment and subject to his local limitations of equipment, time, and co-operation of pupils and patrons. This met the not uncommon difficulty which teachers sometimes have in applying to local conditions, which may be far from ideal, methods and instruction acquired under ideal conditions of normal or college. The plan was also calculated to build up an agricultural teaching force and sentiment in the state without attempting to revolutionize school curricula and organization. It also contemplated the organization during the summer vacation of a class at the university consisting, as far as might be, of the same teachers and under the same leader, in a laboratory that should be a model of economy and convenience, in order that they might thus learn by experiment the need and use of apparatus necessary for the best teaching of agriculture and its related sciences. There was also contemplated the expansion of the visiting force by putting into service university students of agricultural education who, after being drilled in the department, might be put "on the road" each alternate week of their course.

On the part of the university this plan entails the expense of the visitor until such time as the demand for his services might enable it to unload all or a part of it upon the schools profiting from the arrangement. Against this it has the advantage of standardizing from the university the secondary agricultural instruction of the state. Should high schools generally accede to the reiterated request of the agricultural colleges in their propaganda for agriculture in the schools, and proceed to put in courses, each after its own idea of the work, the only standard which the university could set up for admission credits would be so low as to be no standard at all. It is therefore "up to" the university to set up a standard and assist in making it possible for the high school to meet it, or to say less about it. And finally, of no less importance to a university whose presumed position as head of the public school system of its state is recent or not generally recognized, is the chance this kind of work gives for putting the entire state under a lasting obligation to it and of facing all of the high schools of the state in its direction. Here the high schools' necessity is the university's opportunity.

COEDUCATION AGAIN

ELLEN C. HINSDALE
Mount Holyoke College

Woman's right to the higher education is no longer disputed; at least not on this side of the Atlantic. How and where she shall obtain it is still a matter of controversy. Shall it be within the walls of that twentieth-century convent, a woman's college, or in a college affiliated with an established institution for men? or shall it be within this very institution itself? The choice of parents in this matter will be influenced by tradition, personal prejudice, geographical and economic factors, and by the character of the young woman concerned. If the father is a New Englander, it will be either the woman's college, or the college co-ordinated with a foundation for men; but if he belongs to the Middle West or the farther West, his choice will fall in most cases upon the state university or the small coeducational college. When the University of Michigan opened its doors to the first woman student in 1870, coeducation made a great advance over the beginning that had been made earlier by Oberlin and other church colleges. This was nearly forty years ago, a sufficiently long time, it would seem, for educators and laymen to have agreed as to its failure or success. But this is not the case; for at frequent intervals it becomes a theme for discussion in educational literature and at various assemblies of teachers. Indeed, a recent novel has the system of coeducation for a motive, and puts it in the stocks for all who will read to scoff at. An arraignment of more than ordinary vehemence has come recently from President Hamilton, of Tufts College, who prophesies that all institutions in New England which admit both sexes, will eventually become women's colleges. More specifically, he says: "The average young man will no longer attend a coeducational institution. He does not feel at home with women in the same

classroom;" whereupon he proceeds to recommend that the men and women be segregated in the institution over which he presides. If President Hamilton will compare the number of men taking technical courses in Tufts College with those in the department of liberal arts, the true explanation of the situation will perhaps dawn upon him. Young women are not driving young men out of the classrooms where the humanities are taught; but commercialism and the economic conditions of the time are luring them into the workshops of the engineering departments, which are full to overflowing. The catalogue of the University of Michigan for 1907–8 gives an enrolment of 1,795 in the College of Liberal Arts, of whom 681 are women, and 1,345 in the College of Engineering, of whom 2 are women. These figures tell their own story. I make bold to say that not one of the young men studying some form of engineering in this university was influenced in his choice of a profession by the presence of the 681 young women in the literary department. So long as the undeveloped resources of this country afford large opportunities for making money, so long will commercialism prevail; so long will the pursuit of culture be largely in the hands of the women. That it is for the most part in their hands is pretty generally acknowledged. This fact was stated with special felicity by Bishop Spalding, in an address before the National Education Association, given at Buffalo in 1896. If American men are content to be of the Philistines, let the women be given every chance to keep the lamp of culture burning, until the pursuit of dollars has ceased to be the prime motive of American life. That our women will lose their zeal for things of the spirit, we need not fear.

While we grant that coeducation has not fully satisfied expectations during its forty years' trial, we ask whether it has been tried on any large scale under really acceptable conditions. The fair-minded critic admits that it has not. When women in large numbers began to demand the higher education, provisions for satisfying them had to be created, and state universities, by virtue of their public character, were constrained to become coeducational as a few denominational colleges had already done for

other reasons. These universities had been most highly developed in the newer parts of the country, where cheapness in education was demanded by public sentiment. Such conditions were unfavorable to that emphasis upon residence which so impresses the American visitor to Oxford and Cambridge. The mode of living which women students are still obliged to adopt in the majority of coeducational institutions, especially state universities, leaves much to be desired. No suitable provision for their college life awaited their entrance, and none has followed it. Without traditions of their own, and without guidance from educational authorities, the women modeled their social life after that of the men. Side by side with the fraternity and fraternity house sprang up the sorority and the sorority house. Seldom was a suitable patroness placed at the head of this; but it was rather left to the direction of the twelve or twenty inexperienced girls who were responsible for its existence, though not one of the number could properly oversee a home. Here the "hop" of the "frat" house and the society lady's "afternoon" are attempted, with the expenditure to be covered by sacrificing some ordinary propriety of housekeeping. Not yet does the American father treat daughter and son with financial impartiality; the "woman's century" will be far advanced before fathers and husbands cease putting the question regarding the ten cents of yesterday.

Not until the question of residence has been much more wisely considered than hitherto, will coeducation have received a fair trial. State universities should provide houses for women students, where nice personal habits and the graces of social life can be fostered; and women of culture and social position should preside over these. At Oxford and Cambridge, the halls for women are in the care of ladies of very high connections in the social, political, and literary world. It does not answer the question to say that a state government cannot afford such expenditure; as soon as fathers and mothers demand it, the appropriations will be forthcoming. The creation of the office of dean of women is a beginning of the needed reform; though prejudice has sometimes accorded scant courtesy to women's deans. President Van Hise, of the University of Wisconsin, has expressed the

wish that the young women in coeducational colleges might borrow an independent social life from the *colleges for women* alone.[1] With proper provision for residence and social oversight, they might do so.

However, the social life of the woman's college is not altogether perfect. That such an institution is the best place for many girls is true. Nevertheless, a close examination of the "college life" there shows too great a leaning to the boarding school. The social side of the woman's college is threatening to overshadow the educational, if it has not already done so. Not long ago, a prominent lady in one of our cities, herself a college graduate and a person of fine scholarship, said to the writer: "I wish my daughter to have the college life; but I do not care whether she learns anything from books or not." This feeling, of which there is much at the present moment, will shortly change the woman's college into a new sort of "finishing" school, unless that institution shows a stronger resistance than it is momentarily doing.

[1] See the *Educational Review* for December, 1907.

THE FIFTEENTH MICHIGAN CLASSICAL CONFERENCE

FRANCIS W. KELSEY

The Fifteenth Michigan Classical Conference was held at the University of Michigan on March 31 and April 1, 2, and 3, 1909, in connection with the annual meeting of the Michigan Schoolmasters' Club. The programme follows, with references to the place of publication of the papers that have appeared in print.

PROGRAMME

Wednesday Afternoon, March 31

Joint Session of the Classical and Historical Conferences

Presiding Officer: President James B. Angell, University of Michigan

1. The Greek Colonies,
   Arthur L. Cross, University of Michigan.
2. The Rhine and the St. Lawrence and Great Lakes as National Boundaries,
   Francis W. Kelsey, University of Michigan.
   To be published.
3. The Making of Michigan,
   Hon. Clarence M. Burton, Detroit.
   Published in the *Journal of the Michigan Schoolmasters' Club*, Forty-fourth Meeting.
4. Peter White as Man and as Citizen,
   Hon. Levi L. Barbour, Detroit.
   University Bulletin (University of Michigan), Vol. X, No. 22 (24 pp.).

Thursday Afternoon, April 1

Presiding Officer: Professor Joseph H. Drake, University of Michigan

5. The Survivals of Classical Culture in Russia,[1]
   Professor Clarence L. Meader, University of Michigan.
6. An Experiment in High School Classical Publication,
   Miss Frances E. Sabin, Oak Park High School, Illinois.
   School Review, Vol. XVII, pp. 713–16.

[1] Illustrated with the stereopticon.

ROUND TABLE DISCUSSION

THE PROBLEMS OF THE HIGH SCHOOL LATIN COURSE

7. The Aims and Difficulties of First-Year Work,
8. To What Extent May Oral Exercises Be Profitably Used?
9. Requisites for the Successful Teaching of Latin Composition.
10. Interest and Emphasis in the Teaching of Caesar, Cicero, Virgil,
    Rev. E. D. Kelly, St. Thomas School, Ann Arbor.
    Miss Cecile Gauntlett, High School, Jackson.
    Principal John W. Bishop, High School, Pontiac.
    Miss Maude A. Isherwood, High School, Grand Haven.
    Superintendent Arthur S. Hudson, Big Rapids.

    The papers of Father Kelly, Miss Gauntlett, and Superintendent Hudson are printed in the *Journal of the Michigan Schoolmasters' Club*, Forty-fourth Meeting.

FRIDAY AFTERNOON, APRIL 2

Presiding Officer: Professor Martin L. D'Ooge, University of Michigan

11. The Latin Play recently given in the Western High School, Detroit (the scenes reproduced by slides),[2]
    Miss Nellie E. Bancroft and Principal W. A. Morse.
    School Review, Vol. XVII, pp. 631–33.
12. Omina Plautina,
    Professor Samuel Grant Oliphant, Olivet College.
    To be published.
13. Problems of Elementary Greek,
    Professor George A. Williams, Kalamazoo College.
    To be published.
14. Some Questions of Religion and Morality in the Latin Authors of the High School Course,
    Professor Frank B. Meyer, Hope College.
15. Certain Romantic Elements in the Odyssey,
    Professor Campbell Bonner, University of Michigan.
    To be published.
16. The Coptic Manuscript Brought from Egypt in 1908 by Mr. Charles L. Freer,[3]
    Dr. William H. Worrell, University of Michigan.

    This manuscript, containing a considerable portion of the Psalms in the Sahidic dialect, will be published, with an introduction and notes, in Volume X of the University of Michigan Studies, Humanistic Series.

[2]Illustrated with the stereopticon.

SATURDAY MORNING, APRIL 3

Session of the Classical Conference with the General Session of the Michigan Schoolmasters' Club

Presiding Officer: President L. H. Jones, State Normal College

SYMPOSIUM [4]

On the Value of Humanistic, Particularly Classical, Studies as a Training for Men of Affairs

17. Letters, from Hon. James Bryce, Ambassador of Great Britain; James Loeb, formerly of Kuhn, Loeb & Company, New York; William Sloane, President of W. and J. Sloane, New York.
School Review, Vol. XVII, pp. 369–75; also *University Bulletin* (University of Michigan), Vol. X, No. 21, pp. 3–9.

18. The Study of the Classics as a Training for Men of Affairs,
Hon. John W. Foster.
School Review, Vol. XVII, pp. 375–80; also *University Bulletin*, Vol. X, No. 21, pp. 9–14.

19. The Study of Latin and Greek as a Training for Practical Life,
Charles R. Williams, editor of the *Indianapolis News*.
School Review, Vol. XVII, pp. 380–90, and *University Bulletin*, Vol. X, No. 21, pp. 14–24.

20. The Value of the Study of Greek and Latin as a Preparation for the Study of Science,
Harvey W. Wiley, Chief of the Bureau of Chemistry, Washington, D. C.
School Review, Vol. XVII, pp. 390–403, and *University Bulletin*, Vol. X, No. 21, pp. 24–37.

21. The Classics and Modern Life,
James Brown Scott, Solicitor for the Department of State, Washington, D. C.
School Review, Vol. XVII, pp. 498–501, and *University Bulletin*, Vol. X, No. 21, pp. 37–40.

ADDENDUM

The paper by Professor Clarence L. Meader on the Order of Words in Latin Prose, presented at the Fourteenth Classical Conference, was published in the *School Review*, Vol. XVII, pp. 230–243.

[4] A list of the previous symposiums will be found in the *School Review*, Vol. XVII, p. 369 (footnote). At the Classical Conference of 1910 there will be a symposium on "The Classics and the New Education."

DISCUSSION AND CORRESPONDENCE

MAKING TEACHERS' MEETINGS WORTH WHILE

Professor M. V. O'Shea, Madison, Wis.:

DEAR PROFESSOR O'SHEA: I have read with interest and approval your editorial in the November issue of the *School Review.* Your criticism of the declaration of principles of the N. E. A. may be applied to a majority of the papers and discussions given in our state and district meetings. Our teachers attend these meetings hungry for something they can use in their work, hungry for that which deals with the schoolroom problems and progress of the present, but instead of getting that which satisfies they are compelled to listen to platitudes and truisms which serve to weary them and cause them to discount the value of educational gatherings beyond their social side. It has for some time seemed to me that we educators should wake up to what these meetings can do for the work. We need to have more sense and less pride in the matter of accepting places on programmes. If we are asked to participate in them, and have nothing beyond common knowledge to present on the subject assigned, if we can discuss no phase of it specifically, if we have no solution to the problem, if it be a problem, if we have no experiences to relate or thoughts on the work that will inspire our coworkers, we should have the good sense to admit our inability to give that which is worth while and decline to have a part in the discussions.

I feel that our programmes need rejuvenating, that they should be cut down in the number of subjects discussed, and that these discussions should be given by those fitted by experience and ability to handle them in a way to inspire, help, and command respect.

I have been greatly helped by educational gatherings, but I have also been bored and bored. I thank you for your editorial, for it is to the point and courageous.

Very cordially,

E. A. FREEMAN

GRAND RAPIDS, MINN.

THE STUDY OF INDIVIDUAL TRAITS

Editor of the "School Review":

On p. 605 of the November *School Review* Mr. Judd says, "The only way . . . . by which this can be accomplished is to interest those who are in direct contact with high-school children in the observation of their

traits," etc. In the next sentence, the first in the following paragraph, he goes on to say that he has made this proposition from time to time to high-school teachers and has received a response which has left him pessimistic as to the accomplishment of any such thing.

Will not Mr. Judd give us more definite information as to just what traits in high-school pupils he thinks it would be wise for us to observe? I believe that there are teachers all over the country who would respond if he should print a syllabus in the *School Review* which would guide our powers of observation toward the important points. If he does not care to receive the responses himself, such a syllabus might help to clarify the ideas of those who filled it out—even if they never submitted the result to another investigator.

For my part, it is my trade to observe high-school pupils with reference to mental capacity, diligence, truthfulness, good manners, powers of memorizing, powers of reasoning, sense of humor, physical condition, attitude toward studies, attitude toward teachers, etc. I will not bore you with a longer list. What will Mr. Judd have? Is it any of these, or something more?

Very truly yours,

MARY C. ROBINSON

BANGOR, ME.

EDITORIAL NOTES

THE UPPER AND NETHER MILLSTONE

I have previously pointed out the necessity of allowing the secondary school to pass under a control from within. Just why this is so imperative may be made clear by an analysis of the conditions under which the work of the secondary school is now being conducted. Without being carried away by the attractiveness of the metaphor, we may gain in directness of statement by saying that the secondary school is being ground between the upper and nether millstone. The elementary school is an unyielding basis beneath it and the college a weighty but shifting mass above it. Dropping the metaphor, then, let us look at the facts.

It is now in round numbers a century and a half since the opening of the struggle for an elementary school that should have its own justification for existence. After this long lapse of time in spite of renewed criticism we may fairly say that the elementary school has found itself and is living a life of independence and of real development. There were two fundamental things to be got by the struggle begun by Rousseau and Pestalozzi and continued to our day. These two things were not really separate and distinct but different aspects of a life-process designed for children. They were, first, a *content* that should have meaning for the children in their reaching out after experience, and, second, a *method* that should be in keeping with and contributory to their growth. The struggle has ended in a permanent victory on these two fundamental points. No one desires now that the elementary school curriculum shall be determined from the standpoint of the secondary school, nor that the method of elementary education shall be contingent on such a curriculum determined from without. The secondary school not only must, but is quite willing to leave these matters to the elementary school specialist. Such criticism as is heard is directed against failure to live up to opportunities granted, or against misapplication of principles.

Furthermore, in the course of this century-and-a-half development it has been made clear that the criteria for determining the *method* of elementary education are to be derived from the psychology of the growing child, while the criteria for selecting the *content* of elementary education are the permanent factors in that social-individual interaction which we call life. Elementary education, then, is in undisputed possession of the principles and standards in the use of which a progressive and scientific solution of its problems may be reached. The secondary school begins where the elementary school leaves off. It adapts its work to the prepara-

tion it finds without ever presuming to raise the question of its right to prescribe or dictate what that preparation shall be.

The college, too, has undergone a great transformation especially within the last quarter of a century. In comparison with the elementary school, however, no such clear formulation of principles or setting of standards has characterized the change. The movement has been rather in the direction of an unorganized and piecemeal enlargement of the curriculum with a consequent loss of definiteness of aim and method. There has been, to be sure, a tentative formulation of an optimistic belief that somehow enlarged freedom is an adequate substitute for the resulting loss in definiteness. But even now this confidence begins to wane. It is idle to quarrel with the college because it would have its freedom to work out its problem, as the elementary school demanded and got its freedom, and as the secondary school longs for but does not get its freedom. This was a necessary stage in the march of progress. But the striking anomaly in the situation lies right here. The college got its freedom at the expense of the secondary school. The curriculum of the secondary school and college together constituted an intelligible whole that had at least a historical meaning and justification. Either part separated from the other lost its own significance, and yet to this day, the college, having secured for itself freedom, insists on holding within its grasp the control of the secondary school to which it arbitrarily handed over its own unsolved problem, insists, indeed, that there was after all no problem at all, that there has never been any real question to be decided.

This then is the plight of the secondary school. Beneath it the elementary school is working out a content and a method that will furnish a rational starting-point for the work of the secondary school. Above it is a college that does not now know just what it should be about but is quite sure that it knows what the secondary school should do. And the secondary school ground between the upper and nether millstone can neither adopt the sound philosophy of the elementary school and build consistently on its well-constructed foundation, nor work with enthusiasm at the problem handed over to it as insoluble by the college. There must be a way out.

W. B. O.

BOOK REVIEWS

Our City Schools: Their Direction and Management. By WILLIAM ESTABROOK CHANCELLOR. Boston: D. C. Heath & Co., 1908. Pp. xvi+338. $1.25.

With this volume Superintendent Chancellor has placed to his credit nearly one-half the total number of American books treating comprehensively the subject of public-school administration and supervision. His former book, *Our Schools, Their Administration and Supervision* (1904), treated of the smaller school systems, those in communities of from five to fifty thousand; the present book deals with the systems of the larger cities.

The body of the book consists of ten chapters and an appendix. The ten chapters bear the following headings, which are somewhat suggestive of the scope and the contents of the book: "The State and the School;" "The City School System;" "The Business Officers of the City System;" "The City School;" "Equipment;" "The Pupil;" "Special Schools;" "Programmes and Records;" "Aids and Accessories;" "Converting the Occupation into a Profession."

Most of the appendix, which fills two-fifths of the book, is taken up with forms, nearly one hundred of them, selected from those in actual use in several of the larger cities—most of them originating in New York. Here we have forms for billheads, for reporting change of teacher's name, for principal's report on band music, for poster notice of school-registration days, and for literary-club programme at evening recreation centers, as well as a form of building contract, of medical report on defective pupils, of monthly report of attendance officer, and of examination record of candidate for certificate. Much of this material is no better than padding, although probably not inserted for this purpose.

It is impossible, in brief space, to present an abstract of ten chapters; the matter does not lend itself readily to such treatment. It can only be described. Every chapter is crowded full of facts, observations, opinions, suggestions, bits of experience, not a little philosophy, and some metaphysics. It would require careful reading and no little experience with schools and school administration always to determine in which one of these categories many of the statements should be placed. For this reason, and others, the book is better suited to "experienced city-school administrators" than to "students of education," the author to the contrary notwithstanding.

High ideals, deep insights, extensive visions, a keen sense of the far-reaching significance of even apparently trivial details, characterize every chapter. The universal school, in its many forms, is to be the salvation of democratic civilization. Quoting Lotze, the author holds that "the mechanism is of universal significance and conditions the success of the activities of the spirit." And he does not overemphasize, but points out the importance of system, when he says: "I am obliged to hold that a correct school system is absolutely essential to good schools within the system. In the poor school

system, the good school is an accident, and is always in peril of destruction. In the good school system, the poor school is an anomaly and is certainly in process of reform and of improvement" (p. vi).

It would be hard to find a more sympathetic and adequate brief characterization of the child and the child-world than this, opening the chapter on "The Pupil:"

"The world of the child consists of his playmates—brothers, sisters, cousins, neighbors; of his parents, grandparents, uncles, aunts, and other relatives; of his pets and toys; of natural phases and objects—day, night, summer, winter, trees, flowers, birds, brooks; of books—their pictures, and, to an extent, their characters and descriptions; and of the echoes of his soul, in which the experiences of his ancestors find reverberating voices. Of himself as an ego or identity with purposes, habits, ideals, there is very little consciousness. Occasionally, some adult—a teacher, a story-telling man or woman, a fisherman or other adventurer—breaks in upon his consciousness at its periphery, it may be reaches even the heart of him" (p. 98).

Almost equally good is the description which follows of the conventional, mechanical organization of children into schools and classes, and the outline of plans of organization more in harmony with child nature and the needs of individuality.

There are two rather unfortunate characteristics of the book which appear on almost every page. There is a certain dogmatism and spirit of finality and authority manifested in unconditioned statements, which usually contain a considerable measure of obvious truth, and are always presented interestingly, not seldom epigrammatically. The very attractiveness of this style of treatment—and it is decidedly attractive—makes it doubly dangerous. Even one of much experience must read most critically if he would avoid giving full assent to much that is only partially true. Such statements as the following may illustrate this characteristic: "The superintendent must beware of the Scylla on the rocks, which is lay domination. On the other hand, Charybdis whirls, the maelstrom of school intrigue" (p. 179). "Absolutely no subject of instruction in any course for boys and girls under eighteen or nineteen years of age should be pursued for any other reason than that it is educative" (p. 108). . . . . "*In the direction of American free public schools, the common-sense of average men as board members has nearly destroyed education in many communities*" (p. 86). . . . . "Every visit that he (the superintendent) makes to a schoolroom, every talk that he has with a subordinate, every address that he gives to the teachers or before the general public, every proposition that he makes to the board of education, must manifest enthusiastic commendation of *the schools as they are* lest he be suspected of intending revolution or at least such reform as will displace somebody from his or her present position. He must be an educator, or seem to be one, in the school; but he must not be one or seem to be one, at least not too earnestly, out in the world" (pp. 179, 180).

The second, and most unfortunate, characteristic of the book, especially if it is to serve, as the author recommends, chiefly students of school administration, is the spirit of antagonism which it breathes. One must needs think the superintendent of schools a modern Ishmael, his hand against every man, and every man's hand against him. Witness such passages as these: "Board

meetings, committee meetings, conferences with individual board members, and interviews with reporters keen to discover his plans and publish them abroad, are one and all so many traps for the superintendent's falling" (p. 179). . . . . "Moreover, *the record itself is a bulwark of freedom* in the day of conflict with the unsupported recollections of others" (p. 146). . . . . "We are all Napoleons; for each one there is a Waterloo" (p. 180).

The great lesson of the book for would-be superintendents seems to be this. The whole burden and responsibility of educational progress in a community rests on the superintendent of schools; he must bear his load forward alone; not only may he expect no aid, but all the forces of the community—school board, public, even teachers, at least passively—are pitted against him; he can maintain high ideals and work consistently and vigorously for their realization only by unremitting warfare. The culmination of his teaching, which is in the atmosphere of the book rather than in direct statements, is found in the two pathetic "open letters" of the author, published in the appendix.

The first of these letters is addressed, "To Educators Desirous of Becoming Superintendents of Schools in Large Cities." Following are a few of the questions asked in this letter of those desiring to become superintendents of large cities: "Can you rise up and go to bed, knowing that you cannot know what a day or a night may bring forth, but knowing also with certainty that soon or late the end of office cometh? Can you fear neither victory nor defeat, for victory is worse than defeat in that it makes the target ever more prominent? Can you rest merely by varying your work? For if you play golf or drive horses or read books or attend the theater or go to parties, all the world will know it. Can you be affable, yet tell nothing? A thousand or ten thousand teachers are eager to know your thoughts; and every newspaper is ready to give you a column. Can you appear progressive without being so, and equally can you be progressive without appearing so? Can you conceal the fact that you are doing an enormous amount of work? For one reason the teachers, and for another reason the board members, are timid about men who are seen, or even suspected, to work hard" (p. 203).

The second letter is addressed, "To Members of Boards of Education and to Candidates for Board Membership." The spirit and the gist of this letter are given in these passages: "What, then, is the board member to do? Either study education or follow implicitly the advice of the head of the school system. . . . . 'Be not unequally yoked together with unbelievers, for what communion hath light with darkness?' wrote Saint Paul. 'No man can serve two masters,' said Jesus. Either the board or the superintendent must be supreme in the schools. . . . . Do not hold supervisors and teachers in contempt. Do not class them all by their least name, 'teachers.' Do not confuse political authority with personal superiority. You do not wish the new generation to be the educational product of inferiors."

The unfortunate thing about this lesson of universal and constant antagonism is this: the superintendent who accepts it, and acts accordingly, is sure to find it true. The superintendent who sets out in this spirit to determine whether he, or the board, or the public, is supreme, will very soon find out that he, at least, is not. Neither school boards nor public can be driven. The more ignorant and perverse they are, the less appreciative they seem to be of this

means of progress. School boards and public, the most intelligent as well as the most sluggish, can be taught, can be persuaded and led, albeit slowly and deviously, along the way of progress. Patience, perseverance, enthusiasm, a spirit of respectful conciliation, and the desire and expectation of co-operation, will help the superintendent and his cause over or around many an obstacle which would prove insuperable if attacked by more violent methods.

In spite of its defects, sincerely to be regretted, this book is the most readable, the most vigorous and original in style, the most thought-provoking, and, altogether, the most valuable book yet published on school administration. And it is only fair to close this review, not with adverse criticism, but with deep appreciation. Such appreciation can best be expressed by quoting, with full approval, two or three of the many suggestive, forceful, and inspiring passages: "In education, the purpose of democracy is to develop all the energies of all the people in order that, by becoming intelligent, efficient, and moral, they may all have life abundantly" (p. xvi). . . . . "The true test (for grading and promoting) is not the superficial one of extent and accuracy of knowledge and of proficiency in expression, but the substantial one of energy, of motivation, of volition, of intellection, of self-control, and of self-direction. This subtler and truer test we must learn to make. . . . . The determining principle becomes clear that the more we differentiate and integrate our schools and courses, and the more we distinguish, isolate, and group the different kinds of boys and girls, the more likely we are to educate. This principle cuts far below the two notions: that we should allow the boy to follow his bent, to develop himself where his power is; and the converse, that education is supplemental, makes strength out of weakness, straightens the bent, rounds out the circle, founds itself upon the truth that education has no external aim, no objective measures, no standards of authority, but is full of faith in the soul as its own mentor" (pp. 108, 109). . . . . "The multi-millionaire father who educates his sons, though at great expense, does not thereby pauperize either themselves or himself. A multi-billionaire society that educates its youth thereby enriches itself. All the wealth of a nation is in its good citizens because the good citizens either add to the general wealth, or respect and protect it, or both. The costly citizens are the great criminals who live outside the law and the small criminals who are ground beneath the law. A true national education, universally enforced, would permit no criminal to develop" (pp. 129, 130).

F. E. SPAULDING

NEWTON, MASSACHUSETTS

The Control of Body and Mind. By FRANCES GULICK JEWETT. Boston: Ginn & Co., 1908. Pp. 267. $0.60.

This is the fifth book in a series of textbooks on hygiene for schools, the others being *Good Health, Emergencies, Town and City,* and *The Body.* It has been felt for some years by the most thoughtful superintendents of schools and other students of education that the study of what has been called "physiology" in public schools has failed to accomplish what was expected of it; it has not given children the kind of knowledge of their own bodies which appeals to their interest, and it has not led them to take better care of their health. The

subject is usually disliked by pupils, not because it is intrinsically uninteresting to them, nor because it has been unskilfully taught; but chiefly because the wrong material has been presented by textbooks and teachers. Our textbooks, although called "physiologies," have dealt chiefly with anatomy, very little with physiology, and scarcely at all with hygiene. And what hygiene has been taught has been presented by book and teacher alike in dogmatic fashion, so that it became to the pupil a set of arbitrary rules for which he could perceive no reason, and which in consequence he had no motive to practice.

The only justification of this study in the curriculum of elementary schools is its practical bearing on the child's care of his own body. It is therefore not the facts of anatomy, nor even those of physiology, which should form the chief material to be taught, but the laws of hygiene and such reasons for them as the child can comprehend. Our textbooks should present a maximum of hygiene with the minimum of anatomy and physiology. This series of textbooks is the first series which carries out effectively this thought, and it seems to the writer that it carries it out with marvelous skill and with a freshness and suggestiveness wholly unequaled in textbooks on this subject before. The originality of these books strikes the reader at once from the fact that very little of the material which they contain can be found in other series of books on this subject written for schools; and no one will be impressed with this fact more than the teachers in our public schools, to whom much of this material will be as new as it will be to their pupils. This is so true that, it seems to the writer, our normal schools could not do better in training young teachers to teach this subject than to use these books as their texts, or in connection with their texts.

This fifth book deals exclusively with the nervous system. It explains those few facts of anatomy necessary to understand the functioning of nerve cells, and then discusses neural activity with special reference to health and conduct. Beginning with a preliminary explanation of sensation and movement, and the crude anatomy of the cerebrum, there is a chapter on the relation of brain work and blood supply to the brain, and another on the relation of muscular and nervous fatigue. These topics are presented in a most interesting, concrete way by describing the actual experiments of Mosso by means of which the original investigation was made. The children are in a position to draw their own conclusions from the facts and appreciate their full force. This method, indeed, is followed throughout the book, the author constantly going back to the great authorities and original sources and drawing on them freely for illustrative material.

Then succeed chapters on cell structure and cell division and on cell poisoning, in which the effects of alcohol on the nerve cell and on phagocytes are impressively taught. Fatigue, the physiology and hygiene of sleep, the hygiene of the sympathetic system, form each a separate chapter. These chapters are followed by a discussion in six final chapters of the relation of the nervous system to education and to conduct. The attempt has never before been made, so far as the writer is aware, to discuss in a school physiology the elementary facts of psychology and of morals in their relation to the nervous system, and yet this is done so clearly and so effectively by a constant appeal either to facts of common experience in the pupil's life or to facts of the laboratory already taught that one can hardly entertain any serious doubt as to

its feasibility or its practical value. The memory, attention, habit, choice, will-power, and suggestion are touched upon in these chapters.

Throughout the entire series, but especially in this final volume, the effects of alcohol and narcotics are taught in the light of the most recent investigations and with a practical effectiveness never before attained in a series of books of this kind. The teaching is concrete and inductive, the facts are placed before the pupil in so clear a way that he can readily draw his own conclusion. This volume may be rather difficult for pupils in the highest grade of the elementary schools who have not gone through the preceding books of this series. In such cases, the book would be found quite difficult enough for pupils in the first or second year of the high school.

This series will set the standard of school texts on this subject for the future, and will rehabilitate a study now in general disfavor both with teachers and with pupils.

THOMAS M. BALLIET

SCHOOL OF PEDAGOGY
NEW YORK UNIVERSITY, NEW YORK CITY

Zukunftspädagogik.—Berichte und Kritiken, Betrachtungen und Vorschläge. Von DR. WILHELM MÜNCH. Berlin: Georg Reimer, 1908. Pp. 373.

This work by Professor Münch of the University of Berlin affords the most comprehensive view we have of recent writings which have special reference to conscious planning for the future of education. Twenty-five writers, mostly Germans, are selected. Among these are Hugo Göring, Hermann Leitz (Emlohstobba), Ludwig Gurlitt (to whom much more space is given than to anyone else), Theobald Ziegler, Paul Natorp, Wilhelm Rein, and Georg Kerschensteiner. The Frenchmen represented are Edouard Desmolins (*L'Éducation Nouvelle*), Paul Lacombe, Pierre de Coubertin, Gustave Le Bon. There is only one woman in the book, Ellen Key, and but one representative of English-speaking peoples, John Dewey (*The School and Society*).

A second part discusses the problems of the future of humanism, the place of art in future educational schemes, the requisites in religious education, philosophical prerequisites, education in the family and in institutions, the education of women, specialization in universities, etc.

These sections formulate the author's conclusions, drawn from the very fair statements in the first part, about the various schools and theories of schools which are more or less in the public mind. At the close are ten pages of summary under thirty-eight heads. These show the necessity of a change in programme on account of the gradual increase in the accumulations of life's activities gained in one generation and passed on to the next; also that this change must take account of the balance between this race factor and the self-activity of the individual. Adequate provision for all classes must take account of special institutions for the more gifted in which there will continue to be place for the classics. Ability in all social classes should have opportunity, and only the fit should go on into higher schools. Little can be done, however, to limit the over-education of the less able children of the well-to-do.

There is further discussion of the function of the examination, the type of concrete reports desirable, the need of leading to work requiring judgment beyond memory, fewer hours for teachers, the necessity of leaving the more fatiguing studies until adolescence, the desirability of a partial election of studies even in the elementary school, etc.

Like many other German educators, as Dr. Kerschensteiner of Munich, the author sees a place in the public-school system for *internat* schools (boarding-schools) on the lines of Dr. Lietz' *Deutsche Land Erziehungsheime*, but the essential elements of this movement in its recognition of productive labor and allied interests as factors in education do not receive much attention in the summary, although the principle back of them, that of self-activity and direct experience, is never lost sight of.

The time will no doubt come when our requirements will lead us to pay more attention both to experimental schools and to what is done and written in Europe. At present unfortunately our means of coming into control of this material are seriously limited. There is much in Dr. Münch's book deserving of translation and publication in America.

FRANK A. MANNY

KALAMAZOO, MICHIGAN

Extempore Speaking. For School and College. By EDWIN DUBOIS SHURTER. Boston: Ginn & Co. 1908. Pp. vi+178. $1.00.

Professor Shurter, of the University of Texas, in his preface to this book admits that he has derived much help, or rather suggestion, from many books on the topic which he treats. Such an admission saves him from the charges of deliberately "lifting" his material. Were we so disposed we could run the "deadly parallel" between his book and Professor Brander Matthews' *Notes on Speech-Making*, published in 1901. But being more charitably disposed we shall content ourselves with advising the author, taking our thought from Lowell's "The Fable for Critics," that having so much good fruit of his own he should leave Neighbor Matthews' orchard alone. For the author is thoroughly competent to produce good original work. He can and does treat his subject with perspicuity and force. The ambitious young man or young woman who wishes to know how to speak effectively will gain as much useful information from this book as from any recent book that we have read. Professor Shurter will instruct them in the method of preparing and delivering an address, in the advantages of extempore speaking, and in the different types of extempore speeches. He will, moreover, in this book direct them to the classic examples of such speaking, give them subjects and topics, and supply exercises for their ambitious efforts.

Much good use of this volume can be made by the literary societies in our secondary schools.

H. E. COBLENTZ

SOUTH DIVISION HIGH SCHOOL
MILWAUKEE, WISCONSIN

An Introduction to Practical Mathematics. By F. M. Saxelby. London and New York: Longmans, Green & Co., 1908. Pp. vi+220.

This book is intended especially for students in evening schools of engineering and applied sciences. It includes, in the order given, chapters on contracted methods of computation, the use of algebraic symbols in formulas, mensuration of regular figures, the fundamental operations with algebraic expressions, algebraic factors and fractions, simple equations, the theory of exponents and logarithms, plotting of functions, graphical solution of equations, ratio and variation, trigonometric ratios, solution of right triangles, mensuration of irregular figures, and rate of increase of one variable in terms of another. Appended are several Board of Education examination papers, answers to examples, a table of constants, and a table of logarithms.

Although "practical," the book is not a collection of rules and typical examples. The range of topics treated in 190 pages is sufficient indication of its compactness. There is practically no repetition, and each new principle is promptly illustrated by practical problems. The concise explanations of principles are admirably clear and are calculated to stimulate the student's interest in the reasons underlying the processes illustrated. The book seems well adapted to its purpose. It may be used to good advantage also by high-school mathematics teachers as a source of practical problems and of suggestive methods of presenting certain topics.

William E. Stark

Ethical Culture School
New York City

Arithmetical Abilities, and Some Factors Determining Them. By Cliff Winfield Stone. New York: Published by Teachers College, Columbia University, 1908. Pp. 101.

In part, this study is a continuation of the earlier Teachers College studies on the correlation of school abilities. The question is, to what extent excellence in one of the four fundamental processes, addition, subtraction, multiplication, or division of integers, implies excellence in the other three, and to what extent excellence in all four implies excellence in arithmetical reasoning. The remainder of the investigation deals with the relation of the time expended upon arithmetic to the quality of the results. The author's method consisted in visiting personally twenty-six cities and towns, equably distributed over the East and Middle West, and giving a set of questions to the high-sixth-grade classes of certain schools, selected by the various superintendents. The schools chosen were supposed to be those in which the approved course of study had been best carried out for the past six years. The papers were graded by the author. Twelve minutes were allowed on the fundamentals, and fifteen minutes on the reasoning test. Each part contained more questions than could be done in the time allowed, and hence the grades represented speed as well as accuracy. In many respects this investigation is similar to the one made some years ago by Dr. J. M. Rice and published in the *Forum*.

As to the correlation of arithmetical abilities, it was found that excellence

in one of the four fundamental processes does imply a roughly similar degree of excellence in the others. The correlation was not so high between the fundamentals and reasoning; still, when three cities are omitted which avowedly laid the main stress on the fundamentals, the correlation is moderately large.

On the second head—the relation of time expenditure to results—there is, on the whole, little or no correspondence, except in the case of the four processes where home study is figured in. By time expenditure is meant the time spent by the six lower grades in the years during which the pupils tested presumably had been passing through them. The results were computed with inclusion of study periods in school, and both with and without inclusion of home study.

While there are several sources of error in obtaining the above result, still the variations are too great to be accounted for by them. The school system at one extreme of the time-scale spent 7 per cent. of its time on arithmetic, the one at the other extreme, 22 per cent. The first-mentioned was third poorest, the second twelfth from the poorest out of twenty-six systems. *The two systems which made the best and the poorest showing spent respectively 14 and 12 per cent. of their total school time on arithmetic.*

The author attributes this lack of correspondence to a number of causes, among them, (1) wasting of time during the writing of the tests by unnecessarily long verbal analyses of the problems, and (2) wasting of time during the test by counting. These causes indicate defects in arithmetical instruction.

Other conclusions were (1) concentrating the arithmetic of the first six grades in the third to sixth grades produces at least no better results than distributing it over the six grades; (2) home study helps; (3) excellent courses of study are only an opportunity for excellent work. On the whole, it is a valuable investigation for principals and superintendents, not too technical for the beginner in statistical methods. Its chief aim is to standardize elementary-school arithmetic.

HARVEY ANDREW PETERSON

ILLINOIS STATE NORMAL UNIVERSITY
NORMAL, ILLINOIS

School Algebra, Part II. By W. E. PATERSON. Oxford: The Clarendon Press, 1908. Pp. lxvii+604. 3*s*.

There is on the part of many teachers a feeling that the content of the course usually given in college algebra is in need of revision. From the point of view of the average student this course seems to consist of a miscellaneous collection of subjects which have vital relations neither with one another nor with anything else he has studied except, possibly, elementary algebra. The latest college algebras by American authors remedy this in part, but they seem to be written exclusively for students of pure mathematics. This algebra by Professor Paterson, however, comes quite close to meeting the needs of the technical schools, and covers the ground of the usual course in college algebra.

While the necessity of rigorous mathematical treatment seems to be kept in view, the formal proofs are not incomprehensible to the average student. If there is a lack of rigor in some cases, the simple, common-sense explanations carry conviction of the truth, and give the student a grasp of principles which he can use in solving problems. Most of the various algebraic operations and

processes are introduced in a way to show that they are necessary for the solution of practical problems. The lists of problems and applications contain many practical problems, and may be read with profit by American textbook writers.

The treatment of variation and of geometric progression is especially good. There is a good discussion of limiting values, followed by convergency and divergency of series. In some London University examinations a knowledge of French and German mathematical terms is required, hence a few problems in those languages are given. Why should not our college textbooks contain some problems in these languages? Forty-seven pages are given to examination papers of the universities of Oxford, Cambridge, and London, of the joint matriculation boards of universities, and so on; and it is interesting to note that nearly every paper contains one problem on the graph.

Plane and Solid Geometry. By ELMER A. LYMAN. New York: American Book Co., 1908. Pp. 340. $1.25.

It was the purpose of the author "to prepare a geometry through which a student must work his way, relying on his reasoning powers rather than on his memory." The logical side has been emphasized throughout, and though there is no great departure from the beaten path, the changes made are along the lines upon which there has been general agreement in the recent discussions on the teaching of geometry.

The desire of many teachers to postpone or omit the discussion of incommensurable number and limits has received some consideration. However, the author or teacher who wishes to lighten the burden of the pupils at this point, should make it clear to them that this is done by omitting exact definitions and rigorous proofs. The definition, "A limit of a variable is a constant that the variable may approach and remain indefinitely near," is certainly not the best that could be given; and here as elsewhere it is left for the teacher to assure the pupils that the reasoning is not rigorous.

Historical notes are a welcome addition to any textbook, and those given here are well selected. They should be used by the teacher to arouse the interest of the pupils in the development of geometry. There is a good number of geometrical and numerical exercises. While some hints are given concerning accuracy and rapidity in computation, the subject deserves greater attention. There is a wide field for problems including principles of arithmetic, algebra, and geometry in which short methods of computation may be practiced, methods of checking results may be learned, and the limits of accuracy may be determined.

It would seem that the ideal textbook in geometry should include much drawing and construction, should demand that measurements be made by the pupils, and should keep alive the algebra of the preceding year.

A Scrap-Book of Elementary Mathematics. By WILLIAM F. WHITE. Chicago: The Open Court Publishing Co., 1908. Pp. 248. $1.00.

This volume includes seventy essays, puzzles, and notes on interesting and curious mathematical problems. It is just what the name denotes, a scrap-book

of elementary mathematics, but like many a scrap-book it contains much valuable material. The teacher who reads this book carefully will have at hand a fact from the history of mathematics, an interesting little puzzle, a fallacy, or a pertinent illustration to drive home a truth or to break the monotony of some particularly dull moments of a recitation period. Moreover, this book is an admirable introduction to the whole subject of mathematical recreations and to the history of mathematics. It shows many of the interesting things that can be found in such books as: Ball, *Mathematical Recreations and Essays;* Ahrens, *Mathematische Unterhaltungen und Spiele;* Schubert, *Mathematische Mussestunden;* Lucas; *Récréations mathématiques;* Ball, *A Short History of Mathematics;* Cajori, *History of Elementary Mathematics.*

A few of the titles will serve to indicate the nature of the book: Multiplication at sight—a new trick with an old principle. A few numerical curiosities. Numbers arising from measurement. Present trends in arithmetic. Napier's rods, and other mechanical aids to calculations. The three parallel postulates. The three famous puzzles of antiquity. The circle-squarer's paradox. Quotations of mathematics. Magic squares. Axioms in elementary algebra. Do the axioms apply to equations? Checking the solution of an equation. Algebraic fallacies.

The last four notes are of especial value in the first-year algebra classes, since many authors of elementary algebras give little heed to the equivalency of equations. In fact, in some elementary textbooks widely used equations are given which have no solution; nevertheless, the pupils obtain an alleged solution and find their results are correct on referring to the answer book.

This book and others of like content should be in every high-school library. The author well says that amusement is one of the fields of applied mathematics. Here the interest of many pupils may be awakened, and as a result their required work in mathematics may become more pleasurable, hence more profitable.

H. E. Cobb

Lewis Institute
Chicago

Electricity, Sound and Light. A Short University Course. By R. A. Millikan and John Mills. Boston: Ginn & Co., 1908. Pp. 389. Illustrated. $2.00.

This book is an attempt to secure a satisfactory articulation of the laboratory and classroom phases of instruction, and to present a complete logical development, from the standpoint of theory as well as experiment, of the subjects indicated in the title. It is designed to occupy a half-year of daily work, two hours per day, in either the freshman, sophomore, or junior year of the college or technical-school course.

It is divided into short, one-subject chapters, giving the necessary explanations and deriving the general principles involved. At the end of each chapter is an experiment or two typical of the subject of the chapter, followed by illustrative examples of the experiments. At the end of the book there are sets of questions applicable to each chapter; and these are followed by tables giving

various data, including logarithms and natural trigonometric ratios, and finally by an index.

The general division of the book into text, experiments, and problems is to be commended, as it tends to give the pupil a grasp of the subject from all points of view, and also makes him more independent of the teacher. The explanations and illustrations are exceedingly clear; many old truths are presented in new and better form; discussions are not entered into which are beyond the scope of the work or the understanding of the pupils.

The mathematics includes only trigonometry; but wisely uses the differential of certain magnitudes to indicate small quantities. For instance: "Let dQ represent the quantity of electricity which passes a given cross-section in the short element of time dt." In this way the pupil, when he reaches calculus, will have a clearer understanding of the differential, and will not be so likely to hypnotize himself into confusion. There are fewer errors in the book than usually appear in first editions, and the style is excellent.

However, I think the book is open to one serious objection, in common with most books of this type: it tends too much away from the practical. In general we have three classes of scientific books: those which are purely practical; those which are purely theoretical; and those which bridge the other two. Books intended for the instruction of the general college youth should bridge the practical and the theoretical, and if anything should tend toward the practical. There are two ways in which this undesirable tendency is shown: by ignoring practical applications, and by emphasizing principles which relate more to scientific investigations than to practical use. Mere empirical facts should not be introduced; only broad truths with scientific bases are well; but such truths may usually be illustrated by reference to ordinary contrivances, and those which may not might better be omitted.

The motor, the telephone, the microscope, are scarcely mentioned. No attempt is made to apply any of the principles to the everyday uses of sound, light, or electricity. At the same time the principles discussed most fully are the ones seldom applied in practical life. Many pages are devoted to diffraction and to polarization of light, neither of which has bearing of consequence on practical optics, while the mathematical determination of the nodal points, the optical centers, and principal foci of lenses is untouched. Probably not one per cent. of college graduates can show correctly by a diagram the principal focus of a meniscus lens; yet it is simple, scientific, and of much practical importance. Even the principles discussed are so developed as to be inapplicable by the practical man. The index of refraction is based solely upon the relation between the sines, without reference to the practical relation between the angles. The formula for focal distances is discussed at length, but without reference to the simpler formula used in practice; and similarly with the formula for branch resistances. Just as the practical electrician uses the sum of the respective currents in place of the reciprocals of the resistances, so the optometrist uses the sum of the wave powers to find the lens power instead of the sum of the reciprocals of the focal lengths. There is but a slight reference to the heating effect of currents in general, and nothing as to the similar effects of hysterisis and eddy currents; and yet the heating tendency of elec-

trical machinery is not only of the greatest practical importance, but it is full of meat for the scientific investigator.

There are some practical references, however, of much value. The motor and dynamo rule are better stated than in many engineering books. Apparently here attention is given not only to a correct statement of the rules but also to the most convenient statement to remember and to apply. In fact, the work, so far as it enters the practical field, is of great value. The writers are both educators. Mr. Millikan for years has been a leading advocate of simplicity and directness, not only in the classroom, but in books; and he has fully practiced here, as elsewhere, what he preaches. As a basis for scientific investigation the book is in all respects excellent; and for general college use it is fully the equal of any other. I feel, however, that all such books could be improved by giving more attention to practical applications.

E. J. ANDREWS

LANE TECHNICAL HIGH SCHOOL
CHICAGO

Essentials of Botany. By J. Y. BERGEN. Boston: Ginn & Co., 1908. Pp. 380. $1.20.

The various editions of Bergen's botanies for secondary schools are so well known that the latest edition may be best described by comparison with the others.

The *Essentials of Botany* contains work for a school year, and treats all the divisions of the subject except geography and the identification of plants.

The general morphology is so nearly the same as in earlier editions that no special notice is needed.

The physiology, which is mingled with the morphology, is antiquated and contains many errors. Erroneous or deficient statements are made, for example, concerning the sleep-movements of plants, roots turning from hard objects, carbon assimilation, ascent of sap, the demonstration of the elimination of oxygen, and the cause of the fall of the leaf. Not only is the quality of the physiology poor, but there are very many important facts omitted that even children ought to be taught. Moreover, the amount of physiology is smaller in the present volume than in earlier editions: the *Elements* had 32 experiments, and the *Foundations* 39, while the *Essentials* has but 19. The reduction in physiology is, the writer believes, a mistake, pedagogically, as well as for other reasons; for there is no other part of botany that interests pupils so much as plant-behavior.

Ecology is scattered through the general morphology and physiology, as it was originally in the *Elements*, instead of receiving separate treatment as in the three more recent manuals by the same author. This is done because the author believes that the study of ecology requires more knowledge and judgment than is possessed by the beginning pupil.

The number of pages given to the study of spore-plants stands between the extremes of earlier editions. In the *Elements* there were 26 pages, in the *Foundations* 63 pages, in the *Principles* 200 pages, and in the *Essentials* there are 85 pages. This part of the manual may be especially commended.

In the *Principles* by Bergen and Davis, 1906, there were 36 pages given to plant-breeding and economic botany. In the present manual, the same material is extended so as to make 45 pages, divided into three chapters: plant-breeding, useful plants, and forestry. These three chapters are merely good reading-matter. Elsewhere in this book are evidences of an attempt to meet the present popular demand for practical things in the schools. This is shown in the selection of plants used for study. If the present cry for "practical botany" and "agriculture" in the schools is satisfied with such a response as is furnished by this manual, the teacher's task will not be notably increased. In the reviewer's opinion, Mr. Bergen has done well in not attempting directions for practical plant-breeding or agriculture. If ecology has proved too difficult for the pupil, much more will plant-breeding and agriculture be found too difficult. It may be that when schools are provided with gardens and gardeners some elementary agriculture may be taught; but plant-breeding is for the student already trained in years of botany.

With the exception of the physiology, the book may be commended to the schools.

FREDERICK C. NEWCOMBE

THE UNIVERSITY OF MICHIGAN

The Freshwater Aquarium and its Inhabitants. A guide for the amateur aquarist. By OTTO EGGELING AND FREDERICK EHRENBERG. New York: Henry Holt & Co., 1908. Pp. 352. $2.00.

Combining a delightful story of the adaptive habits of the finny denizens of the ponds and streams with a fund of necessary information regarding the care and study of these creatures in artificial but natural environment, this book proves itself worthy a place in the "Nature Series" of which it is a member. It contains about a hundred reproductions of exceptionally fine photographs of living water-plants, fishes, turtles, and other possible inhabitants of the aquarium. The authors have treated of practically all of the native and imported species suitable for aquarium cultivation, with scientific names, photographs *in situ*, and accurate descriptions, by means of which even the amateur may identify the members of his collection. The ecology of each plant and animal is so treated as to guide the aquarist in providing a satisfactory environment for each. The charm of the book lies in the lucid descriptions of the interesting and peculiar habits of the various creatures. In this respect this book should prove an incentive to a more widespread observation of aquatic life. The closing chapters deal with the management of aquaria, explaining not only the things that should be done but also the many errors of mismanagement. In their treatment of diseases the authors have properly placed the emphasis on prevention rather than on cure.

While this book is scientific its phraseology is such that the youthful student or aquarist can read it without difficulty and with keen interest.

TRACY H. HOLMES

MURRAY F. TULEY HIGH SCHOOL
CHICAGO

A Spanish Reader. For Beginners in High Schools and Colleges. By CHARLES ALFRED TURRELL. New York: American Book Co., 1908. Pp. 256. $0.80.

A Spanish lady remarked, "I object to having my children taught to think that there are no such charming short stories in Spanish as those that they are reading in French. They can draw no other conclusion from the selections in their Spanish book." No such criticism will be provoked by this volume of selections. The humor of the first selections will interest the student and incite him to greater effort in oral repetition which makes for the ready use of a foreign language on the part of the learner. The fables and short stories which follow, and the few longer stories that close the group of prose selections, are wholesome and stimulating as reading and not lacking in the other essentials. As Mr. Turrell says in the Introduction, the last selection, "El Rico y el Pobre," is most rich in local color and idioms distinctively characteristic of the Spanish language. In all there is abundant material for use in conversational exercises and brief written reproductions or summaries. The dozen poems, which form Part II, are excellent for committing to memory.

The extracts are carefully graded in length and difficulty. The young student beginning a foreign language soon tires of a long selection through which he must work his way slowly. The notes at the foot of the page call attention to those things most perplexing to the beginner and make helpful suggestions in matters of idiom and grammatical form. Brief accounts of the authors from whose works the selections are taken are also given.

As the irregular forms of the verbs are given in the vocabulary, the book may be used as supplementary reading very early in the course. The Appendix contains tables of the regular and irregular verbs, and the principal rules for the subjunctive mood in Spanish.

It will thus be seen that the editor has brought together in this small volume of something less than 260 pages, material that can be used to excellent advantage in the first year of Spanish.

In the printing of the text there are a number of places where a letter has been dropped, which may cause a little confusion to the student at first. On p. 10 it would seem that a colon, or quotation marks, would make the sense clearer. But these are matters easily remedied. As a whole this little volume meets in a satisfactory manner the requirements for a first Spanish reader.

Avellaneda's "Baltasar." Edited, with Notes and Vocabulary, by CARLOS BRANSBY. New York: American Book Co., 1908. Pp. 224. $0.65.

Baltasar is a text that no teacher need hesitate to place in the hands of a class. As the title suggests, the story is based on the biblical account of the downfall of Babylon; the use of material gathered from other sources adds interest and dramatic power.

This edition is not over-edited. The notes at the foot of the pages furnish the biblical, historical, and traditional information necessary to the understanding of the drama. The editorial comments on grammatical and textual difficulties are clear and concise; always they leave something for the student himself to work out. The pages on the versification of the play, which precede the

vocabulary, will prove very helpful. The vocabulary is sufficient for the needs of the student, and the English is, in general, irreproachable. The translation of "Señora" as "missis," which is a purely colloquial spelling, is unworthy a place in so excellent an edition of a play of such a high order.

In the printing of this play also, some letters have dropped out.

This edition of the play might well find a place in the fourth semester of high-school work or in the second semester of the college course.

CARRIE E. TUCKER DRACASS

ENGLEWOOD HIGH SCHOOL
CHICAGO

The Eleanor Smith Music Course (four volumes). By ELEANOR SMITH. New York: American Book Co., 1908. Book I, 112 pp., $0.25; Book II, 145 pp., $0.30; Book III, 192 pp., $0.40; Book IV, 255 pp., $0.50.

As teacher, composer, and especially as editor, Miss Eleanor Smith has steadfastly insisted upon better material and better methods. Her books of songs for children, published many years ago, are still in demand because the material is of permanent worth. The "Modern Music Series" has, in the ten years of its existence, done more to usher in the newer point of view on public-school music-teaching than any other series.

Her latest publication, the *Eleanor Smith Music Course*, in four attractive volumes, maintains the same high standard of musical merit that is characteristic of the author's work, but it fails to make all of those advances which would have caused it to be hailed as the ideal textbook. The music in variety, both as regards styles and sources, is an advance on any of her previous collections. The text of the songs shows much careful work, close scrutinizing of old material, and abundant use of new, specially prepared poems. In addition to the usual types of good school songs, these books contain a generous proportion of light and humorous material. And never before has a music series so vigorously and successfully asserted that "the song's the thing." The first two books contain scarcely any "exercises," while it is only in the last book that they become frequent, and even there they are far outnumbered by the songs. Drill in reading is to be had, as it should be, in connection with songs with words, and for this there is abundant material.

Those teachers and parents, for this is a good collection for the home, who believe that the main element in the public-school music-teaching is the providing of an abundance of song material, on the principle that surrounding the child with the atmosphere of good music will bring most of the benefits that music has to give, will be enthusiastic in their praises of this collection. But those who believe that there is need of careful pedagogy in music-training may be disposed to point out certain faults in the series. They may aver that save for the commendable emphasis on songs rather than on exercises, the book presents no new teaching ideas; that the arrangement and gradation of material is unsatisfactory; that there is little connection or development between the parts; that none of the old difficult problems are diffused with new light—the treatment of minor is still confusing to the child, when it could easily be simplified; that rhythmic drill is not developed sufficiently; that tone drill

along chord lines is not systematically carried out; and finally that, in the endeavor to obtain new material, too much of the old familiar type, "which every child should know," has been crowded out. However just these criticisms may be, it is certain that the series as a whole is one that can be safely recommended highly for home and general use and that it is one which every supervisor should examine. For the increasing body of independent supervisors who wish to plan their own courses and to draw their material from various sources this series with proper rearrangements and additions will be found to be of great value.

P. W. DYKEMA

THE ETHICAL CULTURE SCHOOL
NEW YORK CITY

Practical Elementary Algebra. By JOS. V. COLLINS. New York: American Book Co., 1908. Pp. 420. $1.00.

Dr. Collins' book makes its chief claim to the title "Practical" by the elimination of difficult problems and unnecessary definitions and by the introduction of applications. These cover a varied range but are uneven in difficulty and often merely arithmetical (p. 121, "What number is 2 more than x?" P. 245, "What is the cost of 8,956 lbs. of coal at $3.50 a ton?"). In its handling of the equation the book is a disappointment. Rules are mechanical and sometimes misleading: p. 61, "Find x, by dividing the right member of the equation by the coefficient of x." Sixty pages later the axioms of equality make their first appearance!

Chap. xvii, "Discussion of the Fundamental Principles of Algebra," suffers from lack of illustrations. Here equivalent equations are explained for the first time and here in a single page is the entire theory of quadratic equations.

The historical notes scattered through the text, Tartaglia's solution of the cubic, Briggs' introduction to Napier and his logarithms, etc., quicken the interest of the student and refresh the memory of the teacher. Their introduction is a step in the right direction.

THIRMUTHIS A. BROOKMAN

THE HIGH SCHOOL
BERKELEY, CALIFORNIA

Elements of Physics. By GEORGE A. HOADLEY. New York: American Book Co. 1908. Pp. 464. $1.20.

This later book from the pen of Professor Hoadley is smaller than his previous work, *A Brief Course in Physics*, the laboratory experiments being omitted in the later text. The book is compact, pleasing in appearance, and well printed. The text is to be commended for the numerous diagrams that help in teaching physics, although some of the diagrams might have been lettered more liberally. Other features that make the book one to be desired by teachers are the many well-chosen problems, the collection of formulae at the end of the text, and the numerous experiments for classroom demonstration. An excellent chapter is given on the topics of wireless telegraphy and the

discharge of electricity through gases. There is just enough material concerning this phase of physics to stimulate the bright student to further reading. It should be added that there are many illustrations that connect everyday life with the subject of physics.

A possible objection is the attention given to the topics of acceleration and units. When it is considered that these topics are not easily grasped by college students, there is some question as to the advisability of introducing them in high-school work. Many teachers, however, by their enthusiasm lead students to master these topics, and to such teachers the matter presented in the text is desirable.

Altogether, the book is an excellent one, and has no better commendation than the fact *that students like it.*

F. R. WATSON

THE UNIVERSITY OF ILLINOIS

The American High School. By JOHN FRANKLIN BROWN. New York: Macmillan, 1909. Pp. 462. $1.40 net.

There are many schoolmen who will find this book a serviceable guide in that it brings together material relating to secondary-school problems. There is a historical section, and then chapters on the function of the high school, the programme, the organization and management, the material equipment, the teacher, the principal, the pupil, the class exercise, the government, the social life, and the relation to the community, with a final chapter on present problems and future development. There are appendices on the programmes and reports of American and European secondary schools. The bibliographies at the close of the chapters are more full than discriminating. On the whole the material is fairly well edited, but the book does not seem to make any definite contribution to educational literature. It is up to date in the discussion of fraternities, the six-year high school, coeducation, etc., but its statements are safe rather than illuminating. One feels that the function of the elementary school is not seen very clearly, and that the educational situation in the secondary school will continue to be unduly limited until this is more clearly seen.

FRANK A. MANNY

KALAMAZOO, MICH.

The Maury-Simonds Physical Geography. By M. F. MAURY AND F. W. SIMONDS. New York: American Book Co., 1908. Pp. 347. $1.20.

This book is a revised and largely rewritten edition of the well-known Maury text. It has been Dr. Simonds' plan "to preserve as far as possible the plan of the older work—a plan that has met the approval of a generation of teachers—and, at the same time, to modernize the text thoroughly." He has succeeded admirably in revising the Maury text and giving it a new and much better dress, but the revision falls far short of being an advance over the present-day science. It must be considered as being several years behind the present "physical geography."

The book is purely descriptive; it would not lead the student to scientific thinking. The treatment of the atmosphere, especially climate, weather, and

weather maps, is wholly inadequate. The subject of glaciers and the glacial period is treated under the heading of the atmosphere, and given only a few pages. The total absence of topographic maps is odd if not inexcusable. The figures and pictures are not numbered, and are seldom referred to in the text. Some of the diagrams and pictures are very poor (pp. 84, 148, 150, 153), while others are so poorly printed that their value is wholly lost. In the appendix the author points out that, "the earth is not young;" that "it is not a finished product;" that "the forces of the past, in varying degree, are still at work," and that it is still being changed and remodeled. Here is the spirit of life and activity that appeals to the student, and it seems unfortunate that this spirit could not have pervaded the entire text instead of being left to the last pages.

GEORGE J. MILLER

UNIVERSITY HIGH SCHOOL
THE UNIVERSITY OF CHICAGO

Readings in the History of Education: Mediaeval Universities. By ARTHUR O. NORTON. Cambridge: Harvard University Press, 1909. Pp. 155.

In this little book Professor Norton has given us some very illuminating samples of the ultimate data of educational history. It is a sourcebook of materials bearing upon mediaeval universities. It is intended primarily for students of the history of education. The extracts given are not sufficiently extended for the purposes of the student engaged in advanced historical research; yet they are, of course, grist for his mill, as far as they go.

Textbooks on the history of education are, for the most part, such distressing affairs, with their unanalyzable mixture of fact, obsolescent theory, and private interpretation, that a teacher of this topic is sincerely pleased at the appearance of a work of this sort. Here we have before us some of the tangible educational débris of the past. One thus sees the past with one's own eyes rather than in the dim, shadowy interpretative description of the historian of education. One sees in these extracts the nature of the scholastic topics of discussion, the form and nature of their textbooks, their disputations, their university courses of study, the various university privileges granted by secular and ecclesiastical authorities, schedules of the day's work, requirements for degrees, and personal attitudes toward the schools as shown by letters of the period.

One ought to be sufficiently grateful, perhaps, and not ask for more. Yet there are many phases of the university life of the period that are illustrated inadequately or not at all. One wishes that the book were fuller and more complete, covering these omitted matters. But Professor Norton disclaims any intention of exhaustiveness for this work. It is, he says, the first of a series of such sourcebooks.

J. F. BOBBITT

SCHOOL OF EDUCATION
THE UNIVERSITY OF CHICAGO

BOOKS RECEIVED

EDUCATION

American Education. By ANDREW S. DRAPER. With an Introduction by NICHOLAS MURRAY BUTLER. Boston: Houghton, Mifflin & Co., 1909. Pp. 382. $2.00 net.

University Addresses. By WILLIAM WATTS FOLWELL. Minneapolis: The H. W. Wilson Co., 1909. Pp. 224.

Methods of Teaching Developed from a Functional Standpoint. By W. W. CHARTERS. Chicago: Row, Peterson & Co., 1909. Pp. 255.

The Junior Republic. Its History and Ideals. By WILLIAM R. GEORGE. With an Introduction by THOMAS M. OSBORNE. New York: D. Appleton & Co., 1910. Pp. xv+326. Illustrated. $1.50 net.

Produktive Arbeit. Beiträge zur neuen Pädagogik. Von FRITZ GANSBERG. Leipzig: Quelle & Meyer, 1909. Pp. vii+234. Illustrated. Unbound, M. 3; bound, M. 3.40.

The Child and His Religion. By GEORGE E. DAWSON. Chicago: The University of Chicago Press, 1909. ix+124. $0.82 postpaid.

Report of the Commissioner of Education for the Year Ended June 30, 1909. Vol. I. Washington: Government Printing Office, 1909. Pp. xi+598.

Statement of the Commissioner of Education to the Secretary of the Interior, for the Fiscal Year Ended June 30, 1909. Washington: Government Printing Office, 1909. Pp. 14.

"United States Bureau of Education, Bulletins," 1909. No. 1, *Facilities for Study and Research in the Offices of the United States Government at Washington.* By ARTHUR TWINING HADLEY. Pp. 73. No. 2, *Admission of Chinese Students to American Colleges.* By JOHN FRYER. Pp. 221. No. 3, *The Daily Meals of School Children.* By CAROLINE L. HUNT. Pp. 62. No. 4, *The Teaching Staff of Secondary Schools in the United States: Amount of Education, Length of Experience, Salaries.* By EDWARD L. THORNDIKE. Pp. 60. No. 5, *Statistics of Public, Society, and School Libraries Having 5,000 Volumes and Over in 1908.* Pp. 215. No. 6, *Instruction in the Fine and Manual Arts in the United States.* (A Statistical Monograph.) By HENRY TURNER BAILEY. Pp. 184. No. 7, *Index to the Reports of the Commissioner of Education: 1867–1907.* Pp. 103. No. 8, *A Teacher's Professional Library.* (Classified List of One Hundred Titles.) Pp. 14. Washington: Government Printing Office, 1909.

ENGLISH

Intonation Curves. A Collection of Phonetic Texts, in Which Intonation Is Marked Throughout by Means of Curved Lines on a Musical Stave. By DANIEL JONES. Leipzig: B. G. Teubner, 1909. Pp. xvi+80, M. 2.60.

The High-School Course in English. By WILLARD G. BLEYER. (Bulletin of the University of Wisconsin, No. 335: High-School Series, No. 1). Third Edition. Madison: The University of Wisconsin, 1909. Pp. 75.

Composition, Oral and Written. By CHARLES SEARS BALDWIN. New York: Longmans, Green & Co., 1909. Pp. xiii+364.

De Quincey's "The Spanish Military Nun" and "Revolt of the Tartars." Edited with Introduction and Notes by V. H. COLLINS. Oxford: The Clarendon Press, 1909. Pp. xi+164. With two maps. $0.50. Text only, pp. 144, with maps, paper $0.20, cloth, $0.25.

Selections from the Addresses, Inaugurals, and Letters of Abraham Lincoln. Edited with an Introduction and Notes by PERCIVAL CHUBB. (Macmillan's Pocket Classics.) New York: Macmillan, 1909. Pp. xxxviii+208. With portrait. $0.25 net.

Selections from the Works of Samuel Johnson. Edited with an Introduction and Notes by CHARLES GROSVENOR OSGOOD. New York: Henry Holt & Co., 1909. Pp. lx+479. Illustrated. $0.90.

"The Lake English Classics." Edited by LINDSAY TODD DAMON. *Selections from the Poems and Plays of Robert Browning.* Edited for School Use by MYRA REYNOLDS. Pp. 425. $0.40. *Macaulay's Essays on Clive and Hastings.* Edited for School Use by ALPHONSO G. NEWCOMER. Pp. 304. With a map. $0.35. *Shakespere's Henry the Fifth.* Edited by WILLIAM ALLAN NEILSON. Pp. 240. $0.25. Chicago: Scott, Foresman & Co., 1909.

Orpheus with His Lute. Stories of the World's Springtime. By W. M. L. HUTCHINSON. New York: Longmans, Green & Co., 1909. Pp. 292. Illustrated.

GERMAN

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HISTORY, CIVICS, AND SOCIOLOGY

The Story of England. An Elementary History for Sixth and Seventh Grades. By SAMUEL BANNISTER HARDING AND WILLIAM FLETCHER HARDING. (The Lake History Series.) Chicago: Scott, Foresman & Co., 1909. Pp. x+380. Illustrated. $0.60.

Pupil's Notebook and Study Outline in Oriental and Greek History. By L. B. LEWIS. New York: American Book Co., 1909. Pp. 144. $0.25,

Abraham Lincoln, The People's Leader in the Struggle for National Existence. By GEORGE HAVEN PUTNAM. With the Speech Delivered by Lincoln in New York, February 27, 1860, and an Introduction by CHARLES C. NOTT, and Annotations by CHARLES C. NOTT AND CEPHAS BRAINERD. New York: Putnams, 1909. Pp. viii+292. With portrait. $1.25 net,

The Teaching of Citizenship. By EDWIN HOLT HUGHES. Boston: W. A. Wilde Co., 1909. Pp. xv+240. $1.25,

Source Book for Social Origins. Ethnological Materials, Psychological Standpoint, Classified and Annotated Bibliographies for the Interpretation of

Savage Society. By W. I. THOMAS. Chicago: The University of Chicago Press, 1909. Pp. xvi+932. Literary edition, $4.77, school edition $3.02, postpaid.

SCIENCE AND MATHEMATICS

"A History of the Sciences." *History of Chemistry.* By SIR EDWARD THORPE. Vol. I., From the Earliest Times to the Middle of the Nineteenth Century. Pp. xii+195. With illustrations. $0.75 net. *History of Astronomy,* By GEORGE FORBES. Pp. xi+200. With illustrations. $0.75. New York: Putnams, 1909.

Elementary Chemistry. By HOLLIS GODFREY. New York: Longmans, Green & Co., 1909. Pp. xiv+456. With illustrations.

The Teaching of Geography. By WILLIAM J. SUTHERLAND. Chicago: Scott, Foresman & Co., 1909. Pp. 295. With illustrations.

The Pupils' Arithmetic. Primary Book. Part II. By JAMES C. BYRNES, JULIA RICHMAN, AND JOHN S. ROBERTS. New York: Macmillan, 1909. Pp. ix+218. $0.30.

MUSIC

Education through Music. By CHARLES HUBERT FARNSWORTH. New York: American Book Co., 1909. Pp. 208. Illustrated. $1.00.

Music in the Public Schools. A manual of suggestions for teachers. By E. W. NEWTON, Boston: Ginn & Co., 1909. Pp. vi+207. $1.00 net; postage 10c.

The Halcyon Song-Book. Compiled and arranged by LEONARD B. MARSHALL. New York: Silver, Burdett & Co., 1909. Pp. 224. $0.75.

MANUAL ARTS

Problems in Wood-Turning. By FRED D. CRAWSHAW. Peoria, Illinois: The Manual Arts Press, 1909. Pp. 35. With 25 plates.

Simplified Mechanical Perspective. For the Use of High Schools, Technical and Manual Training High Schools, Evening Industrial Schools, and Art Schools. By FRANK FORREST FREDERICK. Peoria, Illinois: The Manual Arts Press, 1909. Pp. 54. Illustrated. $0.75.

The Manual Arts for Elementary Schools. Drawing, Design, Construction. By C. S. HAMMOCK AND A. G. HAMMOCK. Boston: D. C. Heath & Co., 1909. First to Eighth Years. Each, pp. 35. Teachers' Manual. Pp. 75.

MISCELLANEOUS

Esthetics. By KATE GORDON. New York: Henry Holt & Co., 1909. Pp. v+315. $1.50.

The Classical Moralists. Selections Illustrating Ethics, from Socrates to Martineau. Compiled by BENJAMIN RAND. Boston: Houghton, Mifflin & Co., 1909. Pp. xix+797. $3.00 net.

Americans. An Impression. By ALEXANDER FRANCIS. New York: D. Appleton & Co., 1909. Pp. xi+256.

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IRENE WARREN
Librarian, School of Education, The University of Chicago

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ASHMUN, MARGARET. Library reading in the high school. School R. 17: 701–4. (D. '09.)

BARNES, CLIFFORD W. Moral training through the agency of the public school. Jour. of Educa. (Bost.). 70:533–36. (25 N. '09.)

BENNETT, CHARLES A. Which of the manual arts shall be taught in the schools? Educa. 30:151–57. (N. '09.)

BLACKWOOD, ALEXANDER L. The relation of science to the student and his needs. Educa. Bi-mo. 4:81–87. (D. '09.)

BROWN, J. STANLEY. The moral atmosphere in secondary schools. Relig. Educa. 4:457–61. (D. '09.)

BROWNE, EDITH A. The school lecture. School W. 11:407–9 (N. '09.)

BUCKLEY, SARA CRAIG. Some of the problems that confront us as educators. Educa. Bi-mo. 4:111–16. (D. '09.)

BUTLER, NICHOLAS MURRAY. The Carnegie Foundation as an educational factor. Educa. R. 38:399–405. (N. '09.)

CALDWELL, OTIS W. Natural history in the grades. El. School T. 10: 131–38. (N. '09.)

CARLTON, FRANK T. Educational ideals and values. Relig. Educa. 4: 445–51. (D. '09.)

———. Continuation schools. School W. 11:415–16. (N. '09.)

COPE, HENRY F. Character development through social living. Relig. Educa. 4:401–9. (D. '09.)

[1] *Abbreviations.*—Atlan. Educa. Journ., Atlantic Educational Journal; Educa., Education; Educa. Bi-mo., Educational Bi-monthly; Educa. R., Educational Review; El. School T., Elementary School Teacher; Harp. W., Harper's Weekly; Journ. of Educa. (Bost.), Journal of Education, (Boston); Journ. of Educa. (Lond.), Journal of Education, (London); Psycholog. Clinic, Psychological Clinic; Pub. Lib., Public Libraries; Relig. Educa., Religious Education; R. of R's, The American Review of Reviews; School R., School Review; School W., School World; Sci. Amer. Sup., Scientific American Supplement; Teach. Coll. Rec., Teachers' College Record.

CORNELL, WALTER S. The need of improved records of the physical condition of school children. Psycholog. Clinic. 3:161–63. (N. '09.)

DAVIS, BENJAMIN MARSHALL. Agricultural education: the United States Department of Agriculture. El. School T. 10:101–9. (N. '09.)

DREVER JAMES. The essential elements of a complete school system. Journ. of Educa. (Lond.). 41:748–50. (N. '09.)

———. Education by experience: the physiological basis of success. Sci. Amer. Sup. 68:362–63. (4 D. '09.)

———. Effects of football reform at Columbia. R. of R.'s. 60:730. (D. '08.)

EVANS, HENRY RIDGELY. A survey of educational literature, 1908, 1909. Atlan. Educa. Journ. 5:5, 6, 38. (D. '09.)

EVANS, W. A. The hygiene of schools and school children. Educa. Bi-mo. 4:88–92. (D. '09.)

FISHER, GEORGE J. Character development, social and personal hygiene. Relig. Educa. 4:392–401. (D. '09.)

GREENWOOD, JAMES H. Formal systematic instruction in moral training. Relig. Educa. 4:465–67. (D. '09.)

HANNA, JOHN CALVIN. The moral atmosphere in secondary schools. Relig. Educa. 4:461–65. (D. '09.)

HOBART, FRANCES. Reaching the rural population. Pub. Lib. 14:373–77. (D. '09.)

HOBSON, SARAH M. Diet of school children. Educa. Bi-mo. 4:93–98. (D. '09.)

HODGE, RICHARD MORSE. The content of a Sunday school curriculum. Relig. Educa. 4:430–33. (D. '09.)

JOHNSON, FRANKLIN WINSLOW. The social organization of the high school. School R. 17:655–80. (D. '09.)

KELLY, BEATRICE M. The selection of juvenile books for a small library. Pub. Lib. 14:367–72. (D. '09.)

KILPATRICK, W. H. Date of the first school in New Netherland. Educa. R. 38:380–92. (N. '09.)

KOHN, ALFRED D. Social hygiene in the schools. Educa. Bi-mo. 4:117–21. (D. '09.)

LEE, JOSEPH. The boy who goes to work. Educa. R. 38:325–43. (N. '09.)

MAIN, JOSIAH. The correlation of high school science and agriculture. Educa. 30:135–45. (N. '09.)

MEADER, CLARENCE L. The present educational situation in Russia. School R. 17:681–93. (D. '09.)

MIERS, H. A. The true object of higher education. School W. 11:401–4. (N. '09.)

MITCHELL, G. R. The most popular English works studied in schools. School W. 11:410–12. (N. '09.)

PADDOCK, MINER H. Holopaideutical teaching. Journ. of Educa. (Bost.). 70:536, 537. (25 N. '09.)

PARKER, S. CHESTER. Our inherited practice in elementary schools. El. School T. 10:139–48. (N. '09.)

———. Professor Sadler on schools in 1929. Jour. of Educa. (Lond.). 41: 747, 748. (N. '09.)

SABIN, FRANCES E. An experiment in high school publication. School R. 17:713–16. (D. '09.)

ST. JOHN, EDWARD P. Method of school and church in moral and religious education. Relig. Educa. 4:418–23. (D. '09.)

SANDIFORD, PETER. Report of the English consultative committee on education. Educa. R. 38:393–98. (N. '09.)

SARGENT, WALTER. Fine and industrial art in elementary schools. Grade I. El. School T. 10:110–20. (N. '09.)

SCOTT, COLIN A. Social education. Educa. 30:163–72. (N. '09.)

SHAW, ALBERT. College reform and football. R. of R's. 60:724–29. (D. '09.)

SHELLY, C. E. The factors of risk and of safety in school athletics. School W. 11:404–7. (N. '09.)

SHEPHERD, JOHN W. The nature study problem in large cities. Educa. Bi-mo. 4:99–104. (D. '09.)

SIEBERT, ALBERT. The development in physical education in Germany. Mind and Body. 16:249–53. (N. '09.)

SKINNER, ERNEST B. Some hints on the uses of limits in geometry. School R. 17:694–700. (D. '09.)

SMITH, FRANK WEBSTER. The normal school ideal. III. Educa. 30: 158–62. (N. '09.)

SOARES, THEODORE G. Religious training for the high-school age. Relig. Educa. 4:451–57. (D. '09.)

SPINDLER, FRANK NICHOLAS. Psychology of motor development. Educa. 30:146–50. (N. '09.)

STARBUCK, EDWIN D. Should the impartation of knowledge be a function of the Sunday school? Relig. Educa. 4:424–29. (D. '09.)

STORR, FRANCIS. The art of translation. Educa. R. 38:359–79. (N. '09.)

STRUTHERS, JOHN. The reading of public school children. Relig. Educa. 4: 468–78. (D. '09.)

TAUSSIG, ALBERT E. The prevalence of visual and aural defects among the public school children of St. Louis County, Mo. Psycholog. Clinic. 3: 149–60. (N. '09.)

TERMAN, LEWIS M. Education against nature: the confessions of a pedagogue. Harp. W. 103:17, 31. (20 N. '09.)

THOMAS, ISAAC. The Bible as a textbook in the public high school. School R. 17:705–12. (D. '09.)

VAILE, HARRY S. The public library as a factor in public education. Educa. Bi-mo. 4:149–53. (D. '09.)

VANDEWALKER, NINA C. Froebelian literature in kindergarten training. El. School T. 10:121–30. (N. '09.)

VOTAW, CLYDE W. Method of school and church in moral and religious education. Relig. Educa. 4:410–17. (D. '09.)

WAGNER, ALVIN E. Retardation and elimination in the schools of Mauch Chunk Township. Psycholog. Clinic. 3:164–73. (N. '09.)

WHITEHEAD, T. The true function of a pupil-teacher center. School W. 11:413–15. (N. '09.)

WINSHIP, A. E. Are our schools behind the needs of the times? Journ. of Educa. (Bost.). 70:479–81. (11 N. '09.)

WITTICH, GEO. Elements of strength and weakness in physical education as taught in public schools. Mind and Body. 16:254–56. (N. '09.)

WOOLMAN, MARY SCHENCK. The making of a girls' trade school. Teach. Coll. Rec. 10:1–67. (S. '09.)